Mr. Jeff Franklin
Harrison Steel Castings Company.
P.O. Box 60
Attica, IN 47918

Re: PSD Significant Source Modification No:
045-12788-00002

Dear Mr. Franklin:

Harrison Steel Castings Company applied for a Part 70 operating permit on May 31, 1996 for a steel and ductile iron foundry. An application to modify the source was received on February 6, 2001. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

One (1) new Airset molding line rated at a maximum steel production rate of 15.73 tons of steel or ductile iron per hour and 18.97 tons of sand per hour. The Airset molding line consists of the following processes/equipment:

(a) pouring operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 18.97 tons of sand per hour, with emissions uncontrolled and exhausting through stacks S37, S39, and S41;

(b) castings cooling operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 18.97 tons of sand per hour, with emissions uncontrolled and exhausting through stacks S37, S39, and S41;

(c) shakeout operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 18.97 tons of sand per hour[1], with emissions controlled by two baghouses, identified as DC43 and DC44, and exhausting to stacks DC43 and DC44;

(d) sand handling operations with a maximum capacity of 47.2 tons of sand per hour, with emissions controlled by a baghouse identified as DC46, and exhausting to stack DC46. The sand handling system consists of the following equipment:

(1) five sand storage silos, each controlled by a bin vent;
(2) two (2) sand heaters;
(3) covered pneumatic conveyors for transporting sand from silos to mixer;

(e) mechanical reclaim operations with a maximum capacity of 47.2 tons of sand per hour, with emissions controlled by a baghouse identified as DC45 and exhausting to stack DC45;

---

[1] Each individual shakeout unit has a maximum design capacity of 10 tons of metal per hour; however, the pouring and cooling operations bottleneck the shakeout process, such that the total hourly rate at shakeout cannot exceed 15.73 tons of metal per hour.

(f) one natural gas fired thermal reclaimer, with a maximum heat input capacity of 2.83 million Btu per hour, with a maximum capacity of 2.85 tons of sand per hour, with emissions controlled by a baghouse identified as DC46 and exhausting to stack DC46;

(g) phenolic urethane no-bake mold making operations with a maximum capacity of 47.2 tons of sand per hour. The mold making operation consists of the following equipment.

(1) one enclosed mixer for combining mold sand with resin, with VOC emissions controlled by the thermal sand reclaimer;
(2) strike off operations;
(3) rollover draw/strip operations;
(4) one natural gas fired preheat tunnel with a maximum heat input capacity of 0.8 million Btu per hour;
(5) mold wash operations with a maximum capacity of 230.69 pounds of mold wash per hour, which is equivalent to 11.34 gallons of mold wash per hour;
(6) one natural gas fired drying (curing) oven, with a maximum heat input capacity of 3.2 million Btu per hour; and
(7) one mold closer process which puts the two halves of the mold together.

The Significant Source Modification approval will be incorporated into the pending Part 70 permit application pursuant to 326 IAC 2-7-10.5(l)(3). If there are no changes to the proposed construction of the emission units, the source may begin operating on the date that IDEM receives an affidavit of construction pursuant to 326 IAC 2-7-10.5(h). If there are any changes to the proposed construction the source can not operate until an Operation Permit Validation Letter is issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call (800) 451-6027, press 0 and ask for Nisha Sizemore or extension 2-8356, or dial (317) 232-8356.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments
nls
cc: File - Fountain County
U.S. EPA, Region V
Fountain County Health Department
Air Compliance Section Inspector - Richard Sekula
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

PART 70 PSD SIGNIFICANT SOURCE MODIFICATION
OFFICE OF AIR QUALITY

Harrison Steel Castings Company
900 South Mound Street
Attica, Indiana 47918

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

PSD Source Modification No.: 045-12788-00002	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date:

TABLE OF CONTENTS

SECTION A SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the emission units contained in conditions A.1 through A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a stationary steel and ductile iron foundry.

Responsible Official:	Executive Vice President
Source Address:	900 South Mound Street, Attica, Indiana 47918
Mailing Address:	P.O. Box 60, Attica, Indiana
SIC Code:	3325, 3321
County Location:	Fountain County
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program Major Source, under PSD; Major Source, Section 112 of the Clean Air Act 1 of 28 Source Categories (secondary metal production)

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source is approved to construct and operate the following emission units and pollution control device:

One (1) new Airset molding line rated at a maximum steel production rate of 15.73 tons of steel or ductile iron per hour and 47.2 tons of sand per hour. The Airset molding line consists of the following processes/equipment:

(a) pouring operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 47.2 tons of sand per hour, with emissions uncontrolled and exhausting through stacks S37through S42;

(b) castings cooling operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 47.2 tons of sand per hour, with emissions uncontrolled and exhausting through stacks S37through S42;

(c) shakeout operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 47.2 tons of sand per hour[1], with emissions controlled by two baghouses, identified as DC43 and DC44, and exhausting to stacks DC43 and DC44;

(d) sand handling operations with a maximum capacity of 47.2 tons of sand per hour, with emissions controlled by a baghouse identified as DC46, and exhausting to stack DC46. The sand handling system consists of the following equipment:

(1) six sand storage silos, each controlled by a bin vent;

[1] Each individual shakeout unit has a maximum design capacity of 10 tons of metal per hour; however, the pouring and cooling operations bottleneck the shakeout process, such that the total hourly rate at shakeout cannot exceed 15.73 tons of metal per hour.

(2) four (4) sand heaters;
(3) covered pneumatic conveyors for transporting sand from silos to mixer;

(e) mechanical reclaim operations with a maximum capacity of 47.2 tons of sand per hour, with emissions controlled by a baghouse identified as DC45 and exhausting to stack DC45;

(f) one natural gas fired thermal reclaimer, with a maximum heat input capacity of 2.83 million Btu per hour, with a maximum capacity of 2.85 tons of sand per hour, with emissions controlled by a baghouse identified as DC46 and exhausting to stack DC46;

(g) phenolic urethane no-bake mold making operations with a maximum capacity of 47.2 tons of sand per hour. The mold making operation consists of the following equipment.

(1) one enclosed mixer for combining mold sand with resin, with VOC emissions controlled by the thermal sand reclaimer;
(2) strike off operations;
(3) rollover draw/strip operations;
(4) one natural gas fired preheat tunnel with a maximum heat input capacity of 0.8 million Btu per hour;
(5) mold wash operations with a maximum capacity of 230.69 pounds of mold wash per hour, which is equivalent to 11.34 gallons of mold wash per hour;
(6) one natural gas fired drying (curing) oven, with a maximum heat input capacity of 3.2 million Btu per hour; and
(7) one mold closer process which puts the two halves of the mold together.

A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22); and

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION B GENERAL CONSTRUCTION CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to 40 CFR Parts 124.15, 124.19 and 124.20, since no public comments were received on the draft permit during the public comment period, the permit is effective upon issuance.

B.3 Permit Expiration Date [326 IAC 2-2-8(a)(1)] [40 CFR 52.21(r)(2)]

Pursuant to 40 CFR 52.21(r)(2) and 326 IAC 2-2-8(a)(1) (PSD Requirements: Source Obligation) this permit to construct shall expire if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is discontinued for a continuous period of eighteen (18) months or more.

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.

(b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.

(c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

(d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

(e) In the event that the Part 70 application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:

(1) If the Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.

(2) If the Part 70 permit has gone through final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.

(3) If the Part 70 permit has gone through public notice, but has not gone through final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will issued after EPA review.

SECTION C GENERAL OPERATION CONDITIONS

C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

(a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification.

(c) A responsible official is defined at 326 IAC 2-7-1(34).

C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) when operation begins, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Permittee's control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

The PMP and the PMP extension notification do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(b) The Permittee shall implement the PMPs as necessary to ensure that failure to implement a PMP does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) A copy of the PMPs shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or contributes to any violation. The PMP does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(d) Records of preventive maintenance shall be retained for a period of at least five (5) years. These records shall be kept at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

C.3 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Any such application shall be certified by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

C.4 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.5 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.6 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule, or in this permit, all air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

C.7 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted by using good engineering practices (GEP)

pursuant to 326 IAC 1-7-3. The provisions of 326 IAC 1-7-2, 326 IAC 1-7-3(c) and (d), 326 IAC 1-7-4(d)(3), (e), and (f), and 326 IAC 1-7-5(d) are not federally enforceable.

Testing Requirements [326 IAC 2-7-6(1)]

C.8 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

(a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ within forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, , if the source submits to IDEM, OAQ, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.9 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

C.10 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

If required by Section D, all monitoring and record keeping requirements shall be implemented when operation begins. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

C.11 Maintenance of Emission Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

(a) In the event that a breakdown of the emission monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the

problem. To the extent practicable, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less frequent than required in Section D of this permit until such time as the monitoring equipment is back in operation. In the case of continuous monitoring, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less often than once an hour until such time as the continuous monitor is back in operation.

(b) The Permittee shall install, calibrate, quality assure, maintain, and operate all necessary monitors and related equipment. In addition, prompt corrective action shall be initiated whenever indicated.

C.12 Pressure Gauge and Other Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

(a) Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent (±2%) of full scale reading.

(b) Whenever a condition in this permit requires the measurement of a temperature the instrument employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent (±2%) of full scale reading.

(c) The Permittee may request the IDEM, OAQ approve the use of a pressure gauge or other instrument that does not meet the above specifications provided the Permittee can demonstrate an alternative pressure gauge or other instrument specification will adequately ensure compliance with permit conditions requiring the measurement of pressure drop or other parameters.

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

C.13 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) The Permittee is required to implement a compliance monitoring plan to ensure that reasonable information is available to evaluate its continuous compliance with applicable requirements. The compliance monitoring plan can be either an entirely new document, consist in whole of information contained in other documents, or consist of a combination of new information and information contained in other documents. If the compliance monitoring plan incorporates by reference information contained in other documents, the Permittee shall identify as part of the compliance monitoring plan the documents in which the information is found. The elements of the compliance monitoring plan are:

(1) This condition;

(2) The Compliance Determination Requirements in Section D of this permit;

(3) The Compliance Monitoring Requirements in Section D of this permit;

(4) The Record Keeping and Reporting Requirements in Section C (General Record Keeping Requirements, and General Reporting Requirements) and in Section D of this permit; and

(5) A Compliance Response Plan (CRP) for each compliance monitoring condition of

this permit. CRP's shall be submitted to IDEM, OAQ upon request and shall be subject to review and approval by IDEM, OAQ. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee and maintained on site, and is comprised of:

(A) Reasonable response steps that may be implemented in the event that compliance related information indicates that a response step is needed pursuant to the requirements of Section D of this permit; and

(B) A time schedule for taking reasonable response steps including a schedule for devising additional response steps for situations that may not have been predicted.

(b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to take reasonable response steps may constitute a violation of the permit.

(c) Upon investigation of a compliance monitoring excursion, the Permittee is excused from taking further response steps for any of the following reasons:

(1) A false reading occurs due to the malfunction of the monitoring equipment. This shall be an excuse from taking further response steps providing that prompt action was taken to correct the monitoring equipment.

(2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the permit, and such request has not been denied.

(3) An automatic measurement was taken when the process was not operating.

(4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.

(d) Records shall be kept of all instances in which the compliance related information was not met and of all response steps taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

(e) All monitoring required in Section D shall be performed at all times the equipment is operating. If monitoring is required by Section D and the equipment is not operating, then the Permittee may record the fact that the equipment is not operating or perform the required monitoring.

(f) At its discretion, IDEM may excuse the Permittee's failure to perform the monitoring and record keeping as required by Section D, if the Permittee provides adequate justification and documents that such failures do not exceed five percent (5%) of the operating time in any quarter. Temporary, unscheduled unavailability of qualified staff shall be considered a valid reason for failure to perform the monitoring or record keeping requirements in Section D.

C.14 Emergency Provisions [326 IAC 2-7-16]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation, except as provided in 326 IAC 2-7-16.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

(1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-5674 (ask for Compliance Section)
Facsimile Number: 317-233-5967

(5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) IDEM, OAQ, may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(10) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ, by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

(g) Operations may continue during an emergency only if the following conditions are met:

(1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

(2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:

(A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and

(B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value.

Any operation shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.

C.15 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The documents submitted pursuant to this condition do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.16 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

(a) Records of all required data, reports and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.17 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

(a) The reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

(c) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(d) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period. Reporting periods are based on calendar years.

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

One (1) new Airset molding line rated at a maximum steel production rate of 15.73 tons of steel or iron per hour and 47.2 tons of sand per hour. The Airset molding line consists of the following processes/equipment:

(a) pouring operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 47.2 tons of sand per hour, with emissions uncontrolled and exhausting through stacks S37through S42;

(b) castings cooling operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 47.2 tons of sand per hour, with emissions uncontrolled and exhausting through stacks S37through S42;

(c) shakeout operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 47.2 tons of sand per hour, with emissions controlled by two baghouses, identified as DC43 and DC44, and exhausting to stacks DC43 and DC44;

(d) sand handling operations with a maximum capacity of 47.2 tons of sand per hour, with emissions controlled by a baghouse identified as DC46, and exhausting to stack DC46. The sand handling system consists of the following equipment:
  (1) six sand storage silos, each controlled by a bin vent;
  (2) four (4) sand heaters;
  (3) covered pneumatic conveyors for transporting sand from silos to mixer;

(e) mechanical reclaim operations with a maximum capacity of 47.2 tons of sand per hour, with emissions controlled by a baghouse identified as DC45 and exhausting to stack DC45;

(f) one natural gas fired thermal reclaimer, with a maximum heat input capacity of 2.83 million Btu per hour, with a maximum capacity of 2.85 tons of sand per hour, with emissions controlled by a baghouse identified as DC46 and exhausting to stack DC46;

(g) phenolic urethane no-bake mold making operations with a maximum capacity of 47.2 tons of sand per hour. The mold making operation consists of the following equipment.
  (1) one enclosed mixer for combining mold sand with resin, with VOC emissions controlled by the thermal sand reclaimer;
  (2) strike off operations;
  (3) rollover draw/strip operations;
  (4) one natural gas fired preheat tunnel with a maximum heat input capacity of 0.8 million Btu per hour;
  (5) mold wash operations with a maximum capacity of 230.69 pounds of mold wash per hour, which is equivalent to 11.34 gallons of mold wash per hour;
  (6) one natural gas fired drying (curing) oven, with a maximum heat input capacity of 3.2 million Btu per hour; and
  (7) one mold closer process which puts the two halves of the mold together.

Note: Each individual shakeout unit has a maximum design capacity of 10 tons of metal per hour; however, the pouring and cooling operations bottleneck the shakeout process, such that the total hourly rate at shakeout cannot exceed 15.73 tons of metal per hour.
(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 BACT for VOC [326 IAC 2-2-3(a)(3)] [326 IAC 8-1-6] [326 IAC 2-4.1-1]

Pursuant to 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules) and 326 IAC 8-1-6 (BACT), and in order to render the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) not applicable to the new Airset line, the Permittee shall comply with the following BACT requirements.

(a) The VOC emissions from the pouring/casting and castings cooling operations shall be limited to 0.14 pounds per ton of metal poured and 2.20 pounds per hour.

(b) The VOC emissions from the shakeout operations shall be limited to 1.2 pounds per ton of metal and 18.9 pounds per hour.

(c) The metal throughput to this new Airset mold line shall not exceed 55,400 tons per 12 consecutive month period. Until 12 months of data have been collected, the limit shall be 4,617 tons per month.

(d) The VOC emissions from the mold making process shall be limited to 1.17 pounds per ton of sand and 22.20 pounds per hour.

(e) The VOC content of the mold wash shall not exceed 0.0 percent by weight.

(f) The mold production shall not exceed 166,200 tons per 12 consecutive month period and the binder usage shall not exceed 1,662 tons per 12 consecutive month period. Until 12 months of data have been collected, the mold production limit shall be 13,850 tons per month and the binder usage limit shall be 138.5 tons per month.

(g) The VOC emissions from the thermal sand reclamation system, which controls the mold sand mixer, shall not exceed 0.013 pounds per ton of sand mixed and 0.61 pounds per hour. The Department may revise this permit to adjust the VOC limitation based upon the results of the stack test required in Condition D.1.11. The Department will provide an opportunity for public notice and comment prior to finalizing any permit revision. IC 13-15-7-3 (Revocation or Modification of a Permit: Appeal to Board) shall apply to this permit condition.

(h) The thermal sand reclamation system shall control VOC emissions from the mixer and achieve a minimum of 98% destruction efficiency.

Therefore, the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) shall not apply to the mold making process. Compliance with the requirements of this condition will also satisfy the requirements of 326 IAC 8-1-6 (BACT).

D.1.2 Particulate Matter (PM) [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Process Operations), the following conditions shall apply:

(a) The allowable PM emission rate from the pouring/casting and castings cooling process shall not exceed 46.7 pounds per hour each when operating at a process weight rate of 15.73 tons of metal per hour each and 47.2 tons of sand per hour each, for a total process weight rate of 62.9 tons per hour each.

(b) The allowable PM emission rate from the baghouses DC43 and DC44 controlling the

shakeout process shall not exceed 46.7 pounds per hour when operating at a process weight rate of 15.73 tons of metal per hour and 47.2 tons of sand per hour, for a total process weight rate of 62.9 tons per hour. The baghouses identified as DC43 and DC44 shall be in operation at all times the shakeout process is in operation, in order to comply with this limit.

(c) The allowable PM emission rate from the baghouse DC46 controlling the sand handling process and the thermal reclaimer shall not exceed 44.0 pounds per hour when operating at a process weight rate of 47.2 tons of sand per hour. The baghouse identified as DC46 shall be in operation at all times the sand handling process is in operation, in order to comply with this limit.

(d) The allowable PM emission rate from the baghouse DC45 controlling the mechanical reclaim process shall not exceed 44.0 pounds per hour when operating at a process weight rate of 47.2 tons of sand per hour.

The pounds per hour limitations were calculated using the following equation:

Interpolation and extrapolation of the data for the process weight rate greater than 60,000 pounds per hour shall be accomplished by use of the equations:

$E = 55\ P^{0.11} - 40$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

D.1.3 PM and PM10 Emissions [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) Rules) not applicable for PM and PM10, the Permittee shall comply with the following requirements.

(a) At least 99% of all particulate matter (PM and PM-10,) emissions generated during sand handling, mechanical reclaim, and thermal reclaim operations shall be captured by a baghouse and controlled such that visible emissions from any building opening shall not exceed three percent (3%) opacity based on a six-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9).

(b) At least 96% of all particulate matter (PM and PM-10,) emissions generated during shakeout operations shall be captured by a baghouse and controlled such that visible emissions from any building opening shall not exceed three percent (3%) opacity based on a six-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9).

(c) The PM emissions from the baghouses DC43 and DC44 controlling the shakeout operations shall be limited to a total of 0.03 pounds per ton of metal throughput. Compliance with this limit will also satisfy the requirements of Condition D.1.2.

(d) The PM10 emissions from the baghouses DC43 and DC44 controlling the shakeout operations shall be limited to a total of 0.022 pounds per ton of metal throughput.

(e) The PM emissions from the baghouse DC46 controlling the Airset sand handling operations and the thermal reclaimer shall be limited to 0.036 pounds per ton of sand throughput to the Airset sand handling system. Compliance with this limit will also satisfy the requirements of Condition D.1.2.

(f) The PM10 emissions from the baghouse DC46 controlling the sand handling operations and the thermal reclaimer shall be limited to 0.005 pounds per ton of sand throughput.

(g) The sand throughput to the thermal sand reclamation system shall not exceed 24,930 tons per 12 consecutive month period. Until 12 months of data have been collected, the limit shall be 2,078 tons per month.

(h) The sand throughput to the sand handling system shall not exceed 166,200 tons per 12 consecutive month period. Until 12 months of data have been collected, the limit shall be 13,850 tons per month.

(i) The PM emissions from the baghouse DC45 controlling the mechanical reclaimer shall be limited to 0.036 pounds per ton of sand throughput. Compliance with this limit will also satisfy the requirements of Condition D.1.2.

(j) The PM10 emissions from the baghouse DC45 controlling the mechanical reclaimer shall be limited to 0.005 pounds per ton of sand throughput.

(k) The PM emissions from the pouring/casting process shall be limited to 0.22 pounds per ton of metal throughput. Compliance with this limit will also satisfy the requirements of Condition D.1.2.

(l) The PM10 emissions from the pouring/casting process shall be limited to 0.22 pounds per ton of metal throughput.

(m) The PM emissions from the castings cooling process shall be limited to 0.22 pounds per ton of metal throughput. Compliance with this limit will also satisfy the requirements of Condition D.1.2.

(n) The PM10 emissions from the castings cooling process shall be limited to 0.22 pounds per ton of metal throughput.

Therefore, the requirements of 326 IAC 2-2 and 40 CFR 52.21 (PSD) will not apply for PM and PM10 emissions.

D.1.4 PM10 Emission Credits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) Rules) not applicable for the new Airset mold line for PM10, the PM10 emission credits must be made federally enforceable; therefore, the following requirements shall apply.

(a) The amount of metal throughput to the mold line identified as POUR shall not exceed 34,304.8 tons per 12 consecutive month period. For the first month after startup of the Airset mold line, the limit shall be 2858.7 tons per month.

(b) The PM10 emissions from the pouring/casting operation identified as POUR shall not exceed 0.22 pounds per ton of metal throughput.

(c) The PM10 emissions from the castings cooling operation identified as POUR shall not exceed 0.22 pounds per ton of metal throughput.

(d) The PM10 emissions from the baghouses identified as DC12 and DC9 controlling the

shakeout system identified as the South shakeout, shall not exceed a combined total of 0.02 pounds per ton of metal throughput.

(e) The sand throughput to the South sand handling system shall not exceed 113,319.2 tons per 12 consecutive month period. For the first twelve months after issuance of this permit, the limit shall be 9443.2 tons per month. This limit shall supersede Condition D.6.2(e) of the Part 70 permit number 045-6002-00002.

(f) The PM10 emissions from the baghouses DC20, DC35, DC36, and DC39 controlling the South Sand Handling System shall not exceed 0.005 pound per ton of sand (total for all four baghouses combined).

Compliance with these conditions is necessary in order that the requirements of 326 IAC 2-2 (PSD) and 40 CFR 52.21 shall not apply to the new Airset mold line.

D.1.5 Lead Emissions [326 IAC 2-2] [326 IAC 2-4.1-1]

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) Rules) not applicable for lead, the Permittee shall comply with the following requirements.

(a) The combined lead emissions from the Airset pouring/casting and castings cooling operations shall be limited to 0.13 pounds per hour.

(b) Lead emissions from the Airset mold line shall be minimized in accordance with the attached Scrap Management Program (Attachment A).

Therefore, the requirements of 326 IAC 2-2 and 40 CFR 52.21 (PSD) will not apply for lead emissions.

D.1.6 HAPs Emissions [326 IAC 2-4.1-1]

In order to render the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) (PSD) Rules) not applicable, the metallic HAP emissions from the Airset mold line shall be minimized in accordance with the attached Scrap Management Program (Attachment A). Therefore, the requirements of 326 IAC 2-4-1.1 (New Source Toxics Control) shall not apply to the Airset mold line.

D.1.7 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the baghouses DC43 and DC44 controlling the shakeout operations, baghouse DC45 controlling the mechanical reclaimer, the thermal reclaimer and the baghouse DC46 controlling the thermal reclaimer, and the five bin vents controlling the six sand silos.

Compliance Determination Requirements

D.1.8 Particulate Matter Controls (PM/PM10)

In order to comply with the limits in Conditions D.1.2, D.1.3, and D.1.6, the following conditions shall apply:

(a) The baghouses DC43 and DC44 for particulate control shall be in operation and control emissions from the shakeout operation at all times that the shakeout process is in operation.

(b) The baghouse DC45 for particulate control shall be in operation and control emissions from the mechanical reclaimer at all times that the mechanical reclaimer is in operation.

(c) The baghouse DC46 for particulate control shall be in operation and control emissions from the thermal reclaimer and the sand handling system at all times that the thermal reclaimer or the sand handling system is in operation.

(d) The bin vents for particulate control shall be in place and control emissions from each of the six sand silos at all times that sand is being transferred into or out of the silos.

(e) All conveyors associated with the sand handling system, mechanical reclamation system, and thermal reclamation system shall be completely enclosed.

D.1.9 Volatile Organic Compound (VOC) Controls

In order to comply with D.1.1(g), the thermal sand reclaimer for VOC control shall be in operation and control emissions from the sand mixer at all times that the mixing process is in operation. When operating, the thermal reclamation system shall maintain a minimum operating temperature of 1400 ^{0}F during operation or a temperature and fan amperage as determined from the most recent compliant stack test, as approved by IDEM.

D.1.10 Volatile Organic Compounds (VOC) Content and Usage Limitations

Compliance with the VOC content and usage limitations contained in Conditions D.1.1 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) using formulation data supplied by the mold wash solvent manufacturer.

D.1.11 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

(a) Within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up the Permittee shall perform VOC testing from the thermal sand reclaimer controlling the sand mixer, the using methods as approved by the Commissioner, in order to demonstrate compliance with Conditions D.1.1(g) and (h). The test on the thermal sand reclaimer controlling the mixer shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

(b) Within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up the Permittee shall perform VOC testing from the Airset pouring, cooling, and shakeout operations, using methods as approved by the Commissioner, in order to demonstrate compliance with Conditions D.1.1(a) and (b). Testing shall be conducted in accordance with Section C - Performance Testing.

(c) Within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up the Permittee shall perform PM and PM10 testing from the facilities as shown in the table below.

Facility Identification	Control Device Identification
Airset shakeout units (both units)	baghouses DC43 and DC44
Airset sand handling system and thermal reclaimer	baghouse DC46
Airset mechanical reclaimer	baghouse DC45

Airset pouring/casting operations	no controls
Airset castings cooling operations	no controls

Testing shall be conducted using methods as approved by the Commissioner, in order to demonstrate compliance with Conditions D.1.2 and D.1.3. The tests on the baghouses shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM10 includes filterable and condensible PM10.

(d) Within 60 days after the Airset line achieves maximum production rate, but no later than 180 days after initial start-up, the Permittee shall perform PM10 emissions testing on the baghouses DC20, DC35, DC36, and DC39 used to control the South sand handling system, baghouses DC12 and DC9 used to control the South shakeout system, and the pouring/casting and castings cooling operations associated with the mold line identified as POUR. Testing shall be conducted using methods as approved by the Commissioner, in order to demonstrate compliance with Conditions D.1.4. The tests on the baghouses shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM10 includes filterable and condensible PM10.

(e) Any stack which has multiple processes which exhaust to the same stack shall operate all of the processes simultaneously in accordance with 326 IAC 3-2.1 (Source Sampling Procedures).

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.12 Visible Emissions Notations

(a) Visible emission notations of the baghouses DC43, DC44, DC45, and DC46 stack exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

D.1.13 Parametric Monitoring

The Permittee shall record the total static pressure drop across the baghouses DC43, DC44, DC45, and DC46 used in conjunction with the shakeout, sand handling, mechanical reclamation, and thermal reclamation processes, at least once per shift when these processes are in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 3.0 and 6.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

The instruments used for determining the pressure shall comply with Section C - Pressure Gauge and Other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.1.14 Baghouse Inspections

An inspection shall be performed each calender quarter of all bags controlling the shakeout, sand handling, mechanical reclamation, and thermal reclamation processes when the ventilation system is configured to vent to the atmosphere. A baghouse inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting to the indoors. All defective bags shall be replaced.

D.1.15 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if there are no visible emissions or if the event qualifies as an emergency and the Permittee satisfies the emergency provisions of this permit (Section B- Emergency Provisions). Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

(b) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

D.1.16 Thermal Reclaimer Monitoring

(a) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal sand reclamation system for measuring the operating temperature. The output of this system shall be recorded, and that temperature shall be greater than or equal to 1400 degrees Fahrenheit or the temperature used to demonstrate compliance during the most recent compliance stack test, as approved by IDEM.

(b) The duct pressure or fan amperage shall be observed at least once per shift when the

thermal sand reclaimer is in operation. This pressure or amperage shall be maintained within the range specified by the manufacturer or a range as established in the most recent compliant stack test, as approved by IDEM.

(c) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the reading is outside the above mentioned range for any one reading. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.17 Record Keeping Requirements

(a) To document compliance with Condition D.1.12, the Permittee shall maintain records of visible emission notations of the baghouses DC 43, DC44, DC45, and DC46 stack exhausts once per shift.

(b) To document compliance with Condition D.1.13, the Permittee shall maintain once per shift records of the inlet and outlet differential static pressure.

(c) To document compliance with Condition D.1.14, the Permittee shall maintain records of the results of the inspections required under Condition D.1.14 and any dates the baghouse exhaust is changed from indoors to outdoors, and from the outdoors to the indoors.

(d) To document compliance with Condition D.1.1 and D.1.3, the Permittee shall maintain records of the metal and sand throughputs to this new Airset mold line. These records shall be complete and sufficient to establish compliance with the emission limits established in D.1.1 and D.1.3.

(e) To document compliance with Conditions D.1.1, D.1.9, and D.1.16, the Permittee shall maintain records in accordance with (1) and (2) below.

(1) The continuous temperature records for the thermal reclaimer and the temperature used to demonstrate compliance during the most recent compliance stack test.

(2) Records of the duct pressure or fan amperage once per shift.

(f) In order to document compliance with Conditions D.1.1, the Permittee shall maintain records in accordance with (1) through (3) below.

(1) Copies of the Material Safety Data Sheets for each mold wash material used at the Airset mold line;

(2) The amount of binder usage in the Airset mold line, each month of operation; and

(3) The sand throughput to the thermal sand reclaimer, each month of operation.

(g) To document compliance with Condition D.1.4(a), the Permittee shall maintain records of the metal throughputs to the POUR line. These records shall be complete and sufficient to

establish compliance with the emission limits established in D.1.4.

(h) To document compliance with Condition D.1.4(e), the Permittee shall maintain records of the sand throughputs to the South sand handling system. These records shall be complete and sufficient to establish compliance with the emission limits established in D.1.4. This condition shall supersede Condition D.6.10(d) of the Part 70 permit number 045-6002-00002.

D.1.18 Reporting Requirements

(a) Quarterly summaries of the information to document compliance with Conditions D.1.1 and D.1.3 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

(b) Quarterly summaries of the information to document compliance with Condition D.1.4(a) shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

(c) Quarterly summaries of the information to document compliance with Condition D.1.4(e) shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. This condition shall supersede Condition D.6.10(d) of the Part 70 permit number 045-6002-00002.

(d) The reports submitted by the Permittee do require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

PART 70 SOURCE MODIFICATION CERTIFICATION

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, Indiana 47918
Mailing Address: P.O. Box 60, Attica, Indiana 47918
Source Modification No.: 045-12788-00002

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.

Please check what document is being certified:

9 Test Result (specify) _____

9 Report (specify) _____

9 Notification (specify) _____

9 Affidavit (specify) _____

9 Other (specify) _____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name:	Harrison Steel Castings Company
Source Address:	900 South Mound Street, Attica, Indiana 47918
Mailing Address:	P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.:	T045-6002-00002
Source Modification Number	045-12788-00002
Facility:	pouring/casting and casting cooling operations identified as POUR
Parameter:	Metal throughput to POUR line
Limit:	34,304.8 tons of metal per 12 consecutive month period

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name:	Harrison Steel Castings Company
Source Address:	900 South Mound Street, Attica, Indiana 47918
Mailing Address:	P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.:	T045-6002-00002
Source Modification Number	045-12788-00002
Facility:	pouring/casting and casting cooling operations identified as POUR
Parameter:	Metal throughput to POUR line
Limit:	2858.7 tons of metal per month

YEAR: _____

Month	Metal poured at POUR line (tons)
Month 1	
Month 2	
Month 3	

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name:	Harrison Steel Castings Company
Source Address:	900 South Mound Street, Attica, Indiana 47918
Mailing Address:	P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.:	T045-6002-00002
Source Modification Number	045-12788-00002
Facility:	thermal sand reclaimer
Parameter:	sand throughput to thermal sand reclaimer
Limit:	24,930 tons per 12 consecutive month period

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, Indiana 47918
Mailing Address: P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.: T045-6002-00002
Source Modification Number 045-12788-00002
Facility: thermal sand reclaimer
Parameter: sand throughput to thermal sand reclaimer
Limit: 2078 tons of sand per month

YEAR: _____

Month	sand throughput to thermal sand reclaimer (tons)
Month 1	
Month 2	
Month 3	

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name:	Harrison Steel Castings Company
Source Address:	900 South Mound Street, Attica, Indiana 47918
Mailing Address:	P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.:	T045-6002-00002
Source Modification Number	045-12788-00002
Facility:	Airset sand handling system
Parameter:	sand throughput to Airset sand handling system
Limit:	166,200 tons per 12 consecutive month period.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, Indiana 47918
Mailing Address: P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.: T045-6002-00002
Source Modification Number 045-12788-00002
Facility: Airset sand handling system
Parameter: sand throughput to Airset sand handling system
Limit: 13,850 tons of sand per month

YEAR: _____

Month	sand throughput to Airset sand handling system (tons)
Month 1	
Month 2	
Month 3	

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name:	Harrison Steel Castings Company
Source Address:	900 South Mound Street, Attica, Indiana 47918
Mailing Address:	P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.:	T045-6002-00002
Source Modification Number	045-12788-00002
Facility:	Airset mold making process
Parameters:	Mold production and binder usage at Airset mold line
Limit:	166,200 tons of molds per 12 consecutive month period, and 1,662 tons of binder usage per 12 consecutive month period.

YEAR: _____

Month	Parameter	Column 1	Column 2	Column 1 + Column 2
		This Month	Previous 11 Months	12 Month Total
Month 1	Mold production			
	Binder usage			
Month 2	Mold production			
	Binder usage			
Month 3	Mold production			
	Binder usage			

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____

Phone: _____

Attach a signed certification to complete this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name:	Harrison Steel Castings Company
Source Address:	900 South Mound Street, Attica, Indiana 47918
Mailing Address:	P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.:	T045-6002-00002
Source Modification Number	045-12788-00002
Facility:	Airset mold making process
Parameters:	Mold production and binder usage
Limits:	13,850 tons of molds per month and 138.5 tons of binder usage per month

YEAR: _____

Month	Mold Production (tons)	Binder Usage (tons)
Month 1		
Month 2		
Month 3		

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____

Phone: _____

Attach a signed certification to this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, Indiana 47918
Mailing Address: P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.: T045-6002-00002
Source Modification Number 045-12788-00002
Facility: Airset molding line
Parameter: Metal throughput to Airset molding line
Limit: 55,400 tons of metal per 12 consecutive month period

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name:	Harrison Steel Castings Company
Source Address:	900 South Mound Street, Attica, Indiana 47918
Mailing Address:	P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.:	T045-6002-00002
Source Modification Number	045-12788-00002
Facility:	Airset molding line
Parameter:	Metal throughput to Airset molding line
Limit:	4,617 tons of metal per month

YEAR: _____

Month	Metal throughput to Airset molding line (tons)
Month 1	
Month 2	
Month 3	

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name:	Harrison Steel Castings Company
Source Address:	900 South Mound Street, Attica, Indiana 47918
Mailing Address:	P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.:	T045-6002-00002
Source Modification Number	045-12788-00002
Facility:	South sand handling system
Parameter:	sand throughput to South sand handling system
Limit:	113,319.2 tons per 12 consecutive month period.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, Indiana 47918
Mailing Address: P.O. Box 60, Attica, Indiana 47918
Part 70 Permit No.: T045-6002-00002
Source Modification Number 045-12788-00002
Facility: South sand handling system
Parameter: sand throughput to South sand handling system
Limit: 9443.3 tons of sand per month

YEAR: _____

Month	Sand throughput to South sand handling system (tons)
Month 1	
Month 2	
Month 3	

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to this report.

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the
Technical Support Document for a Significant Source Modification
to a Part 70 Operating Permit

Source Name:	Harrison Steel Castings Company
Source Location:	900 South Mound Street, Attica, IN 47918
County:	Fountain
SIC Code:	3321 and 3325
Operation Permit No.:	T045-6002-00019
Operation Permit Issuance Date:	not yet issued
Significant Source Modification No.:	045-12788-00002
Permit Reviewer:	Nisha Sizemore

On May 9, 2001, the Office of Air Quality (OAQ) had a notice published in the Fountain County Neighbor, Attica, Indiana, stating that Harrison Steel Castings Company had applied for a significant source modification to a Part 70 Operating Permit to operate a new Airset mold line. The notice also stated that OAQ proposed to issue a permit for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Upon further review, IDEM has decided to make the following changes to the permit:

Section B

Since no public comments were received on the draft permit, Condition B.2 has been changed to state that the permit is effective upon issuance.

B.2 Effective Date of the Permit [40CFR 124]

Pursuant to 40 CFR Parts 124.15, 124.19 and 124.20, ~~if~~ **since no** public comments ~~are~~ **were** received on the draft permit during the public comment period, **the permit is effective upon issuance.** ~~the effective date of this permit will be thirty-three (33) days from its issuance. If no public comments are received, the effective date of this permit will be the date of issuance of the permit.~~

Section D

(1) Since the scrap management plan will have no effect on VOC emissions, the following change has been made to Condition D.1.1.

D.1.1 BACT for VOC [326 IAC 2-2-3(a)(3)] [326 IAC 8-1-6] [326 IAC 2-4.1-1]

Pursuant to 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD) Rules) and 326 IAC 8-1-6 (BACT), and in order to render the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) not applicable to the new Airset line, the Permittee shall comply with the following BACT requirements.

(a) The VOC emissions from the pouring/casting and castings cooling operations shall be limited to 0.14 pounds per ton of metal poured and 2.20 pounds per hour.

(b) The VOC emissions from the shakeout operations shall be limited to 1.2 pounds per ton of metal and 18.9 pounds per hour.

(c) The metal throughput to this new Airset mold line shall not exceed 55,400 tons per 12 consecutive month period. Until 12 months of data have been collected, the limit shall be 4,617 tons per month.

(d) The VOC emissions from the mold making process shall be limited to 1.17 pounds per ton of sand and 22.20 pounds per hour.

(e) The VOC content of the mold wash shall not exceed 0.0 percent by weight.

(f) The mold production shall not exceed 166,200 tons per 12 consecutive month period and the binder usage shall not exceed 1,662 tons per 12 consecutive month period. Until 12 months of data have been collected, the mold production limit shall be 13,850 tons per month and the binder usage limit shall be 138.5 tons per month.

(g) The VOC emissions from the thermal sand reclamation system, which controls the mold sand mixer, shall not exceed 0.013 pounds per ton of sand mixed and 0.61 pounds per hour. The Department may revise this permit to adjust the VOC limitation based upon the results of the stack test required in Condition D.1.11. The Department will provide an opportunity for public notice and comment prior to finalizing any permit revision. IC 13-15-7-3 (Revocation or Modification of a Permit: Appeal to Board) shall apply to this permit condition.

(h) The thermal sand reclamation system shall control VOC emissions from the mixer and achieve a minimum of 98% destruction efficiency.

~~(i) VOC emissions from the Airset mold line shall be minimized in accordance with the attached Scrap Management Program (Attachment A).~~

Therefore, the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) shall not apply to the mold making process. Compliance with the requirements of this condition will also satisfy the requirements of 326 IAC 8-1-6 (BACT).

(2) The process weight rates of the pouring/casting, castings cooling, and shakeout processes were listed incorrectly in Condition D.1.2. The emission limits were correct.

D.1.2 Particulate Matter (PM) [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Process Operations), the following conditions shall apply:

(i) The allowable PM emission rate from the pouring/casting and castings cooling process shall not exceed 46.7 pounds per hour each when operating at a process weight rate of ~~15.3~~ **15.73** tons of metal per hour each and 47.2 tons of sand per hour each, for a total process weight rate of ~~62.5~~ **62.9** tons per hour each.

(j) The allowable PM emission rate from the baghouses DC43 and DC44 controlling the shakeout process shall not exceed 46.7 pounds per hour when operating at a process weight rate of ~~15.3~~ **15.73** tons of metal per hour and 47.2 tons of sand per hour, for a total process weight rate of ~~62.5~~ **62.9** tons per hour. The baghouses identified as DC43 and DC44 shall be in operation at all times the shakeout process is in operation, in order to comply with this limit.

Affidavit of Construction

Paragraph #5 of the affidavit of construction has been modified such that it references the correct source name, Harrison Steel Castings Company.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a PSD Significant Source Modification to a Part 70 Operating Permit.

Source Background and Description

Source Name:	Harrison Steel Castings Company
Source Location:	900 South Mound Street, Attica, IN 47918
County:	Fountain
SIC Code:	3321 and 3325
Operation Permit No.:	T045-6002-00019
Operation Permit Issuance Date:	not yet issued
Significant Source Modification No.:	045-12788-00002
Permit Reviewer:	Nisha Sizemore

The Office of Air Quality (OAQ) has reviewed a modification application from Harrison Steel Castings Company relating to the construction of the following emission units and pollution control devices:

The Airset molding line consists of the following processes/equipment:

(1) pouring operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 47.2 tons of sand per hour, with emissions uncontrolled and exhausting through stacks S37 through S42;

(2) castings cooling operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 47.2 tons of sand per hour, with emissions uncontrolled and exhausting through stacks S37 through S42;

(3) shakeout operations, consisting of two units, with a combined maximum capacity of 15.73 tons of steel or ductile iron per hour[1] and 47.2 tons of sand per hour, with emissions controlled by two baghouses, identified as DC43 and DC44, and exhausting to stacks DC43 and DC44;

(4) sand handling operations with a maximum capacity of 47.2 tons of sand per hour, with emissions controlled by a baghouse identified as DC46, and exhausting to stack DC46. The sand handling system consists of the following equipment:
   (a) six sand storage silos, each controlled by a bin vent;
   (b) four (4) sand heaters;
   (c) covered pneumatic conveyors for transporting sand from silos to mixer;

(5) mechanical reclaim operations with a maximum capacity of 47.2 tons of sand per hour, with emissions controlled by a baghouse identified as DC45 and exhausting to stack DC45;

(6) one natural gas fired thermal reclaimer, with a maximum heat input capacity of 2.83 million Btu per hour, with a maximum capacity of 2.85 tons of sand per hour, with emissions

---

[1] Each individual shakeout unit has a maximum design capacity of 10 tons of metal per hour; however, the pouring and cooling operations bottleneck the shakeout process, such that the total hourly rate at shakeout cannot exceed 15.73 tons of metal per hour.

controlled by a baghouse identified as DC46 and exhausting to stack DC46;

(7) phenolic urethane no-bake mold making operations with a maximum capacity of 47.2 tons of sand per hour. The mold making operation consists of the following equipment.
- (a) one enclosed mixer for combining mold sand with resin, with VOC emissions controlled by the thermal sand reclaimer;
- (b) strike off operations;
- (c) rollover draw/strip operations;
- (d) one natural gas fired preheat tunnel with a maximum heat input capacity of 0.8 million Btu per hour;
- (e) mold wash operations with a maximum capacity of 230.69 pounds of mold wash per hour, which is equivalent to 11.34 gallons of mold wash per hour;
- (f) one natural gas fired drying (curing) oven, with a maximum heat input capacity of 3.2 million Btu per hour; and
- (g) one mold closer process which puts the two halves of the mold together.

History

On February 6, 2001, Harrison Steel Castings Company submitted an application to the OAQ requesting to construct one new Airset mold line. Harrison Steel submitted a Part 70 permit on May 31, 1996.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
DC43	shakeout	46	3	40,000	250
DC44	shakeout	46	3	40,000	250
DC45	mechanical reclaimer	46	2.5	14,100	ambient
DC46	sand handling, mold making, mold wash station, and thermal reclaimer	46	2.5	14,100	250

Recommendation

The staff recommends to the Commissioner that the Part 70 PSD Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on February 6, 2001. Additional information was received on March 2, 2001, April 10, 2001, April 11, 2001, April 12, 2001, April 13, 2001, April 17, 2001, and April 18, 2001.

Emission Calculations

Calculations are provided in Appendix A of this document. (7 pages)

Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

This table reflects the PTE before controls for the entire project. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit for entire project (tons/year)
PM	744
PM-10	171
SO_2	0.56
VOC	134
CO	1.47
NO_x	2.03

HAP's	Potential To Emit for entire project (tons/year)
methyl di-isocyanate (MDI)	2.63
Chlorine	7.33
Antimony	0.8
lead	0.11
arsenic	0.0562
cadmium	0.0260
nickel	0.2895
cobalt	0.0129
chromium	0.1645
manganese	13.41
selenium	0.0433
TOTAL	24.8724

Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(1), which states that any modification subject to the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) requires a significant source modification.

County Attainment Status

The source is located in Fountain County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC and NO_X emissions are considered when evaluating the rule applicability relating to the ozone standards. Fountain County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Fountain County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	greater than 100
PM-10	greater than 100
SO_2	less than 100
VOC	greater than 100
CO	less than 100
NOx	less than 100

This existing source is a major stationary source because an attainment regulated pollutant is emitted at a rate of 100 tons per year or more, and it is one of the 28 listed source categories, specifically a secondary metal production facility.

These emissions are based upon the technical support document for the draft Part 70 permit number 045-6002-00002.

Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

	Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X	Total HAPs
sand handling	5.98	0.90	0.00	0.00	0.00	0.00	0.00
mold making	0.00	0.00	0.00	97.23	0.00	0.00	2.63
preheat tunnel	0.03	0.03	0.00	0.02	0.29	0.35	0.00
mold wash station	0.00	0.00	0.00	0.00	0.00	0.00	0.00
drying oven	0.11	0.11	0.01	0.08	1.18	1.40	0.00
pouring/casting and castings cooling	12.18	12.18	0.55	3.88	0.00	0.28	0.71
shakeout	1.77	1.24	0.00	33.24	0.00	0.00	0.09
mechanical reclaimer	5.98	0.90	0.00	0.00	0.00	0.00	0.31
thermal reclaimer	1.01	0.24	0.01	0.08	1.20	1.43	0.05
Total for this modification	18.92	15.6	0.56	183.84	1.47	2.03	3.79
Contemporaneous decreases[2]	0.00	2.66	0.00	0.00	0.00	0.00	0.00
Contemporaneous increases[3]	0.00	0.82	0.00	0.00	0.00	0.00	0.00
Net Emission Increases	18.92	13.76	0.56	183.84	1.47	2.03	3.79
PSD Significance Level	25	15	40	40	100	40	0.6

This modification to an existing major stationary source is major for VOC; therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements apply.

Federal Rule Applicability

(a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this proposed modification.

---

2 The source will accept production limits on the existing molding line identified as POUR and for the existing sand handling system identified as the South sand handling system, in order to reduce emissions from the POUR line and the South sand handling system by these amounts.

3 In 1997 the source added a new heat treat furnace, identified as L7SC. These emissions represent the PTE PM10 of the heat treat furnace.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 61 or 63) applicable to this proposed modification.

State Rule Applicability - Individual Facilities

326 IAC 2-1-3.4 (New Source Toxics Control)

This proposed project is potentially subject to the New Source Toxics Control rule which requires a constructed or reconstructed major source of HAPs to control emissions consistent with MACT. Because there is no established NESHAP for steel foundries or for ductile iron foundries, this source shall be required to make the MACT determination on a case-by-case basis. The requirements of this rule are consistent with the final federal rule implementing Section 112(g)(2)(B) of the Clean Air Act.

Harrison Steel has accepted federally enforceable permit limits in order to reduce HAPs emissions from the new Airset mold line to levels below 10 tons per year of any single HAP and 25 tons per year of a combination of HAPs. Therefore, the New Source Toxics Control rule does not apply to the new Airset mold line.

In order to render the requirements of 326 IAC 2-4.1-1 (New Source Toxics Control) not applicable, the Permittee shall comply with the following requirements.

(a) The combined lead emissions from the Airset pouring/casting and castings cooling operations shall be limited to 0.13 pounds per hour. Therefore, the requirements of 326 IAC 2-2 and 40 CFR 52.21 (PSD) will not apply for lead emissions.

(b) Lead emissions from the Airset mold line shall be minimized in accordance with the attached Scrap Management Program (Attachment A).

(c) The metallic HAP emissions from the Airset mold line shall be minimized in accordance with the attached Scrap Management Program (Attachment A).

Therefore, the requirements of 326 IAC 2-4-1.1 (New Source Toxics Control) shall not apply to the Airset mold line.

326 IAC 2-2 (Prevention of Significant Deterioration (PSD) Rules)

VOC Emissions

This proposed modification is subject to the Prevention of Deterioration (PSD) rules for because the VOC emissions are above the PSD significant threshold levels reported in 326 IAC 2-2-1. The PSD provisions require that this major modification be reviewed to ensure compliance with the National Ambient Air Quality Standards, the applicable PSD air quality increments, and the requirements to apply the best available control technology on the project's emissions.

The *Air Quality Analysis* report included in Appendix C was conducted to show that this major modification does not violate the National Ambient Air Quality Standards (NAAQS) and does not exceed the incremental consumption above 80 percent of the PSD increment for any pollutant. In addition, the cost per ton of pollutant removed, energy requirements, and environmental impacts are weighed in IDEM's final decision. Control technology summaries of the facilities covered in this major modification are discussed in the *BACT Analysis Report* included in Appendix B.

PM and PM10 Emissions from new Airset Line

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)

Rules) not applicable for PM and PM10, the Permittee shall comply with the following requirements.

(a) At least 99% of all particulate matter (PM and PM-10,) emissions generated during sand handling, mechanical reclaim, and thermal reclaim operations shall be captured by a baghouse and controlled such that visible emissions from any building opening shall not exceed three percent (3%) opacity based on a six-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9).

(b) At least 96% of all particulate matter (PM and PM-10,) emissions generated during shakeout operations shall be captured by a baghouse and controlled such that visible emissions from any building opening shall not exceed three percent (3%) opacity based on a six-minute average (24 readings taken in accordance with 40 CFR Part 60, Appendix A, Method 9).

(c) The PM emissions from the baghouses DC43 and DC44 controlling the shakeout operations shall be limited to a total of 0.03 pounds per ton of metal throughput. Compliance with this limit will also satisfy the requirements of Condition D.1.2.

(d) The PM10 emissions from the baghouses DC43 and DC44 controlling the shakeout operations shall be limited to a total of 0.022 pounds per ton of metal throughput.

(e) The PM emissions from the baghouse DC46 controlling the sand handling operations and the thermal reclaimer shall be limited to 0.036 pounds per ton of sand throughput. Compliance with this limit will also satisfy the requirements of Condition D.1.2.

(f) The PM10 emissions from the baghouse DC46 controlling the Airset sand handling system and the thermal reclaimer shall be limited to 0.005 pounds per ton of sand throughput to the Airset sand handling system.

(g) The sand throughput to the sand handling system shall not exceed 166,200 tons per 12 consecutive month period. Until 12 months of data have been collected, the limit shall be 13,850 tons per month.

(h) The sand throughput to the thermal sand reclamation system shall not exceed 24,930 tons per 12 consecutive month period. Until 12 months of data have been collected, the limit shall be 2,078 tons per month.

(i) The PM emissions from the baghouse DC45 controlling the mechanical reclaimer shall be limited to 0.036 pounds per ton of sand throughput. Compliance with this limit will also satisfy the requirements of Condition D.1.2.

(j) The PM10 emissions from the baghouse DC45 controlling the mechanical reclaimer shall be limited to 0.005 pounds per ton of sand throughput.

(k) The PM emissions from the pouring/casting process shall be limited to 0.22 pounds per ton of metal throughput. Compliance with this limit will also satisfy the requirements of Condition D.1.2.

(l) The PM10 emissions from the pouring/casting process shall be limited to 0.22 pounds per ton of metal throughput.

(m) The PM emissions from the castings cooling process shall be limited to 0.22 pounds per ton of metal throughput. Compliance with this limit will also satisfy the requirements of Condition D.1.2.

(n) The PM10 emissions from the castings cooling process shall be limited to 0.22 pounds per ton of metal throughput.

Therefore, the requirements of 326 IAC 2-2 and 40 CFR 52.21 (PSD) will not apply for PM and PM10 emissions.

PM10 Emission Credits

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) Rules) not applicable for the new Airset mold line for PM10, the PM10 emission credits must be made federally enforceable; therefore, the following requirements shall apply.

(a) The amount of metal throughput to the mold line identified as POUR shall not exceed 34,304.8 tons per 12 consecutive month period. For the first month after startup of the Airset mold line, the limit shall be 2858.7 tons per month.

(b) The PM10 emissions from the pouring/casting operation identified as POUR shall not exceed 0.22 pounds per ton of metal throughput.

(c) The PM10 emissions from the castings cooling operation identified as POUR shall not exceed 0.22 pounds per ton of metal throughput.

(d) The PM10 emissions from the baghouses identified as DC12 and DC9 controlling the shakeout system identified as the South shakeout, shall not exceed a combined total of 0.02 pounds per ton of metal throughput.

(e) The sand throughput to the South sand handling system shall not exceed 113,319.2 tons per 12 consecutive month period. For the first twelve months after issuance of this permit, the limit shall be 9443.2 tons per month. This limit shall supersede Condition D.6.2(e) of the Part 70 permit number 045-6002-00002.

(f) The PM10 emissions from the baghouses DC20, DC35, DC36, and DC39 controlling the South Sand Handling System shall not exceed 0.005 pound per ton of sand (total for all four baghouses combined).

Compliance with these conditions is necessary in order that the requirements of 326 IAC 2-2 (PSD) and 40 CFR 52.21 shall not apply to the new Airset mold line.

326 IAC 6-3-2 (Process Operations)

Pursuant to this rule the following conditions shall apply:

(a) The allowable PM emission rate from the pouring/casting and castings cooling process shall not exceed 46.7 pounds per hour each when operating at a process weight rate of 15.3 tons of metal per hour each and 47.2 tons of sand per hour each, for a total process weight rate of 62.5 tons per hour each.

(b) The allowable PM emission rate from the baghouses DC43 and DC44 controlling the shakeout process shall not exceed 46.7 pounds per hour when operating at a process weight rate of 15.3 tons of metal per hour and 47.2 tons of sand per hour, for a total process weight rate of 62.5 tons per hour. The baghouses identified as DC43 and DC44 shall be in operation at all times the shakeout process is in operation, in order to comply with this limit.

(c) The allowable PM emission rate from the baghouse DC46 controlling the sand handling

process and the thermal reclaimer shall not exceed 44.0 pounds per hour when operating at a process weight rate of 47.2 tons of sand per hour. The baghouse identified as DC46 shall be in operation at all times the sand handling process is in operation, in order to comply with this limit.

(d) The allowable PM emission rate from the baghouse DC45 controlling the mechanical reclaim process shall not exceed 44.0 pounds per hour when operating at a process weight rate of 47.2 tons of sand per hour.

The pounds per hour limitations were calculated using the following equations:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

Interpolation and extrapolation of the data for the process weight rate greater than 60,000 pounds per hour shall be accomplished by use of the equations:

$E = 55\ P^{0.11} - 40$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

Calculations indicate that based on baghouse characteristics, these processes can comply with these limits.

326 IAC 8-1-6 (VOC Rules)

The new Airset mold line, has potential VOC emissions of greater than 25 tons per year. Pursuant to this rule, the process shall reduce emissions using BACT. The VOC emissions from this process are also limited by the BACT requirements of 326 IAC 2-2. Control technology summaries of the facilities generating VOC emissions from this major modification are discussed in the *BACT Analysis Report* included in Appendix B. Compliance with the BACT requirements in 326 IAC 2-2-3 will satisfy the BACT requirements in 326 IAC 8-1-6 (BACT).

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this modification are as follows:

The thermal reclaimer, and baghouses DC43, DC44 controlling shakeout process, baghouse DC 45 controlling the mechanical reclaimer, baghouse DC46 controlling the thermal reclaimer, sand handling system, mold making process, and mold wash station, and baghouse DC47 controlling the pouring/casting and casting cooling operations have applicable compliance monitoring conditions as specified below:

(a) Visible emissions notations of each baghouse stack exhaust shall be performed once per shift during normal daylight operations. A trained employee will record whether emissions are normal or abnormal. For processes operated continuously "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Preventive Maintenance Plan for this unit shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

(b) The Permittee shall record the total static pressure drop across each baghouse, at least once per shift when the associated processes are in operation. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 3.0 to 6.0 inches of water or a range established during the latest stack test. The Preventive Maintenance Plan for this unit shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of the above mentioned range for any one reading. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

(c) An inspection shall be performed each calender quarter of all bags controlling the pouring, cooling, shakeout, sand handling, mechanical reclamation, and thermal reclamation processes. All defective bags shall be replaced.

(d) In the event that bag failure has been observed.

(1) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if there are no visible emissions or if the event qualifies as an emergency and the Permittee satisfies the emergency provisions of this permit (Section B- Emergency Provisions). Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

(2) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the

emergency provisions of this permit (Section B - Emergency Provisions).

(e) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal sand reclamation system for measuring the operating temperature. The output of this system shall be recorded, and that temperature shall be greater than or equal to 1400 degrees Fahrenheit or the temperature used to demonstrate compliance during the most recent compliance stack test, as approved by IDEM. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the temperature is outside the below the minimum for any one reading. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

(f) The duct pressure or fan amperage shall be observed at least once per shift when the thermal sand reclaimer is in operation. This pressure or amperage shall be maintained within the range specified by the manufacturer or a range as established in the most recent compliant stack test, as approved by IDEM. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the reading is outside the above mentioned range for any one reading. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

(g) The Permittee shall perform emissions testing as specified in the table below utilizing methods as approved by the Commissioner. The stack tests shall be repeated at least once every 5 years from the date of the valid compliance demonstration. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facilities are in compliance. For all PM10 tests, PM10 includes filterable and condensible PM10.

Facilities to be tested	Pollutants for which to test
baghouse DC46 controlling sand handling system and thermal reclamation system	PM, PM10
thermal sand reclaimer controlling the mixer	VOC
baghouse DC43 and DC44 controlling shakeout	PM, PM10, and VOC
Airset pouring/casting and castings cooling	PM, PM10, and VOC
baghouse DC45 controlling the mechanical reclaimer	PM, PM10
mold sand/resin mixer	VOC
pouring/castings and castings cooling associated with the mold line identified as POUR	PM10
baghouses DC9 and DC12 controlling the South shakeout system	PM10
baghouses DC20, DC35, DC36, and DC39 controlling the South sand handling system	PM10

These monitoring conditions are necessary in order to ensure compliance with 326 IAC 2-2 (PSD), 326 IAC 8-1-6 (BACT), and 326 IAC 6-3-2 (Process Operations).

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Quality (OAQ) Part 70 Application Form GSD-08.

(a) This source will emit levels of air toxics less than those which constitute a major source according to Section 112 of the 1990 Clean Air Act Amendments.

(b) See attached calculations for detailed air toxic calculations.

Conclusion

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 PSD Significant Source Modification No. 045-12788-00002.

Permit
Attachment A

HAZARDOUS MATERIALS, AND RADIATION SCRAP MANAGEMENT PROGRAM

Source Background and Description

Source Name:	Harrison Steel Castings Company
Source Location:	900 South Mound Street, Attica, Indiana 47918
County:	Fountain
PSD Significant Source Modification Number:	045-12788-00002
SIC Codes:	3321, 3325

Specifications

1. GENERAL
   a. All grades of scrap shall be free of material which contain excessive amounts of volatile organic compounds such as oil, grease, fuels, and glycols, hazardous material such as tin plate, babbit, or lead material, or radioactive material. These materials and those specified in the following sections are hereby referred to as contaminated scrap.

   b. All scrap material shall meet the specifications in this Scrap Management Program and be acceptable to Harrison Steel Castings Company or its scrap-processing agent.

   c. Any material that deviates from the following specifications must be rejected.

2. COPPER
   Copper containing material shall be removed or the load shall be rejected. This includes copper wire and cable, sheet, copper-coated materials, bearing journals, electric motors or windings, and radiator cores.

3. HAZARDOUS MATERIAL
   Scrap received with evidence of hazardous material, hazardous material containers, or material, which during melting will produce a hazardous pollutant, shall be rejected (i.e., asbestos, oils, and chemical containers).

4. LEAD
   The presence of babbit, solder, balancing weights, batteries, pipe fitting, old electrical wire and connectors, cooling units, turnings, soldered tins, or materials with excessive amounts of lead-based paint shall be removed or the load shall be rejected.

5. NON-FERROUS MATERIAL
   Non-ferrous scrap may contain elevated levels of hazardous constituents such as chromium, nickel, and lead. Such scrap is generally nonmagnetic (e.g. electric motors, aluminum pots and pans, brass, and pewter) and shall be rejected. Only scrap that is picked up by the magnets from the scrap cranes is acceptable.

6. RADIATION
   a. All grades of scrap must be free of radioactive materials or radiation sources. If any such material or sources are present, the load shall be rejected.

b. In addition to the scrap being rejected when radiation is detected, the railcar or truck shall be handled in accordance with all applicable laws or rules of the Indiana State Board of Health, Radiological Department, or any other agency having jurisdiction in the area in which the radiation is detected.

7. TANKS AND CYLINDERS

a. Tanks, cylinders, or sealed units may be included in shipments if the ends are cut open and prepared in a manner to insure that they are not sealed and will not retain contaminating fluids.

b. These shall include, but are not limited to, torque converters, transmissions, rear ends, hydraulic cylinders, gas tanks, closed pipe compressors, capacitors, shock absorbers, and gear boxes.

c. Visual presence of any of these items shall be cause for the material to be removed from the scrap or the load shall be rejected. However, coated gas tanks shall be rejected regardless of its condition or even if cut open.

8. TIN

The presence of tin cans, solder, coatings, or other tinned material shall be removed or the load shall be rejected.

9. TOP-DRESSING

a. Trucks and cars must not be top-dressed with clean scrap in order to hide contaminated scrap.

b. If evidence of top-dressing is apparent during unloading process, the contaminated scrap shall be removed or the remaining partial shipments shall be rejected. Contaminated scrap already unloaded shall be reloaded and rejected.

Scrap Inspection Procedure

At any point in the inspection process, Harrison Steel Castings Company personnel or agents working on behalf of Harrison Steel Castings Company have the option to issue warnings and accept loads with minor deficiencies or to reject loads which contain contaminated scrap.

1 SCRAP INSPECTORS

The persons responsible for inspecting the loads for contaminated scrap are the Harrison Steel Castings Company employees operating the railcar or truck scales, the scrap bay and unloading operators, and yard personnel (crane operators, sorters, supervisors, etc.), the Environmental Department, the scrap broker, metallurgical laboratory technicians, and other agents working on behalf of Harrison Steel Castings Company.

2. ENTRY

a. All scrap shall pass through the radiation detector when entering the scales.

b. Inspection for radioactive scrap shall rely on radiation gauges located at the scales.

c. In the event that the detector is activated, the load shall pass through the detector again.

d. Should the alarm be triggered again, a scan using a hand Geiger Counter of the load shall be conducted.

e. The scale operator shall verify that the paperwork does not indicate the load contains contaminated scrap.

f. The scale operator shall verify that the paperwork accompanying the load matches the load. If not, then the correct paper work shall be obtained before acceptance of the load or the load shall be rejected.

3. SCRAP INSPECTION

a. The metallurgical laboratory technicians and unloading operators, or yard personnel shall inspect the top of the load to insure it complies with the specifications.

b. Yard personnel operators shall observe the load being dumped to make sure the load is consistent and contains no contaminated scrap.

c. If the metallurgical laboratory technicians and unloading operator suspect top-dressing of the load, they may direct the load to be magged-off to inspect for load consistency.

d. Scrap bay operators shall inspect the scrap during loading into the charge bucket.

e. Contaminated scrap found in the scrap yard shall be removed and discarded in accordance with applicable rules and regulations.

4. SCRAP SAMPLING AND CHEMISTRY LIMITS FOR SCRAP

a. Metallurgical laboratory technicians shall take a representative sample of each load of scrap.

b. Each sample shall be analyzed on the spectrometer in order to determine compliance with the chemical limits listed in the table below.

Element	Turnings (max wt % of sample)	Busheling (max wt % of sample)	2-ft Plate for Steel (max wt % of sample)	2-ft Plate for Ductile Iron (max wt % of sample)
Lead	0.0002	0.0002	0.0002	0.0002
Carbon	0.45	0.45	0.45	0.20
Manganese	1.00	1.00	1.00	0.60
Phosphorus	0.040	0.040	0.040	0.015
Sulfur	0.040	0.040	0.040	0.020
Silicon	0.30	0.30	0.30	0.15
Nickel	0.20	0.20	0.20	0.10

Chromium	0.20	0.15	0.15	0.06
Molybdenum	0.10	0.05	0.05	0.03
Copper	0.20	0.20	0.20	0.05
Element	**Turnings (max wt % of sample)**	**Busheling (max wt % of sample)**	**2-ft Plate for Steel (max wt % of sample)**	**2-ft Plate for Ductile Iron (max wt % of sample)**
Boron	0.001	0.001	0.001	0.0005
Tin	0.01	0.01	0.01	0.01
Aluminum	0.08	0.08	0.08	0.08
Titanium	0.02	0.02	0.02	0.01
Vanadium	0.04	0.04	0.04	0.01
Zirconium	0.02	0.02	0.02	0.01

c. If the sample does not meet any of the limits in the following table, then the load shall be rejected.

5. LOAD ACCEPTANCE
Loads that meet the scrap specifications in this Program may be directed for unloading and melting.

6. REJECTED LOADS

a. Loads that do not meet the specifications within this Program shall be returned to the vendor or the contaminated scrap removed from the load.

b. Contaminated scrap that is removed from the load shall be returned to the vendor or disposed in accordance with applicable rules and regulations.

APPENDIX B

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) DETERMINATION

Source Background and Description

Source Name:	Harrison Steel Castings Company
Source Location:	900 South Mound Street, Attica, IN 47918
County:	Fountain
Significant Source Modification No.:	045-12788-00002
SIC Code:	3321 and 3325
Permit Reviewer:	Nisha Sizemore

BACT Analysis

The Indiana Department of Environmental Management (IDEM) has performed the following federal BACT review for the proposed new Airset molding line to the existing steel and ductile iron foundry to be owned and operated by Harrison Steel Castings Company located in Attica, Indiana. This review was performed for the proposed Airset molding line rated at a maximum steel production rate of 15.73 tons of steel or iron per hour and 47.2 tons of sand per hour. The Airset molding line consists of the following processes/equipment:

(1) pouring operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 18.97 tons of sand per hour, with emissions exhausting through stacks S37, S39, and S41;
(2) castings cooling operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 18.97 tons of sand per hour;
(3) shakeout operations with a maximum capacity of 15.73 tons of steel or ductile iron per hour and 18.97 tons of sand per hour;
(4) sand handling operations with a maximum capacity of 47.2 tons of sand per hour, consisting of the following equipment:
    (A) five sand storage silos;
    (B) two (2) sand heaters;
    (C) covered pneumatic conveyors for transporting sand from silos to mixer;
(5) mechanical reclaim operations with a maximum capacity of 47.2 tons of sand per hour;
(6) one natural gas fired thermal reclaimer, with a maximum heat input capacity of 2.83 million Btu per hour, with a maximum capacity of 2.85 tons of sand per hour;
(7) phenolic urethane no-bake mold making operations with a maximum capacity of 47.2 tons of sand per hour. The mold making operation consists of the following equipment.
    (A) one enclosed mixer for combining mold sand with resin;
    (B) strike off operations;
    (C) rollover draw/strip operations;
    (D) one natural gas fired preheat tunnel with a maximum heat input capacity of 0.8 million Btu per hour;
    (E) mold wash operations with a maximum capacity of 230.69 pounds of mold wash per hour, which is equivalent to 11.34 gallons of mold wash per hour;
    (F) one natural gas fired drying (curing) oven, with a maximum heat input capacity of 3.2 million Btu per hour; and
    (G) one mold closer process which puts the two halves of the mold together.

The source is located in Fountain County which is designated as attainment or unclassifiable for all criteria pollutants. Based upon the emission calculations, the modification exceeds the PSD significant threshold

levels stated in 326 IAC 2-2-1 for VOC. Therefore, VOCs were reviewed pursuant to the PSD Program (326 IAC 2-2 and 40 CFR 52.21). The PSD Program requires a BACT review and air quality modeling. BACT is an emission limitation based on the maximum degree of reduction of each pollutant subject to the PSD requirements. IDEM conducts BACT analyses in accordance with the *"Top-Down" Best Available Control Technology Guidance Document* outlined in the 1990 draft USEPA *New Source Review Workshop Manual*, which outlines the steps for conducting a top-down BACT analysis. Those steps are listed below.

(1) Identify all potentially available control options;
(2) Eliminate technically infeasible control options;
(3) Rank remaining control technologies by control effectiveness;
(4) Evaluate the most effective controls and document the results; and
(5) Select BACT.

Also in accordance with the *"Top-Down" Best Available Control Technology Guidance Document* outlined in the 1990 draft USEPA *New Source Review Workshop Manual*, BACT analyses take into account the energy, environmental, and economic impacts on the source. These reductions may be determined through the application of available control techniques, process design, and/or operational limitations. Such reductions are necessary to demonstrate that the emissions remaining after application of BACT will not cause or contribute to air pollution thereby protecting public health and the environment.

The following BACT determinations are based on the following information:

(1) The PSD permit application submitted by Harrison Steel Castings Company on February 6, 2001;
(2) Additional documentation provided by Harrison Steel subsequent to the submittal of the application;
(3) Information IDEM gained from other regulatory agencies;
(4) Other IDEM permits and permits from other regulatory agencies;
(5) Information from vendors/suppliers;
(6) The OAQPS control cost manual and trade journals; and
(7) The EPA RACT/BACT/LAER (RBLC) Clearinghouse.

VOC BACT

The VOC emissions generated from the Airset molding line are from the pouring, cooling, shakeout, mold making, and thermal reclaim operations. The VOC emissions from the mold making operation will be generated by the partial evaporation of the binder material used in making the molds. This partial evaporation is expected to occur throughout all steps of the mold making process; although it is not well established how much of the partial evaporation will occur at each individual step of the process. A BACT discussion of VOC emissions from pouring, cooling, shakeout, mold making, and thermal reclaim operations are presented below.

(1) Pouring and Cooling

The source produces both steel and ductile iron castings. Steel castings make up approximately 85-90% of the total product at this source. Molten steel at a temperature of approximately 3000 degrees Fahrenheit is poured into sand molds, which are then transported to a cooling area. Most of the VOC from this process result from the partial evaporation of the binder material from the molds when the molten steel is poured into the sand molds. Since cooling begins immediately after pouring, it is not possible to completely distinguish between these two operations; therefore, these two processes have been reviewed

together. Additionally, IDEM has found that most other permits for similar sources have a single VOC emission limitation for both pouring and cooling. Harrison Steel has also proposed a single VOC limit for both operations.

Step 1 - Identify Control Options

Control Options Evaluated - The following available technologies were evaluated to control VOC emissions from the pouring and cooling processes:

Regenerative thermal oxidizer
Recuperative design incinerator
Catalytic incinerator
Flare
Carbon Adsorption
Absorption (scrubbing)
Condensation

Step 2 - Eliminate technically infeasible control options

Harrison Steel estimates the required flow rate for controlling the pouring process would be 897,000 scfm, the VOC concentration would be 0.06 ppmv, and the heat content would be 0 Btu/scf. The OAQPS Cost Control Manual provides information for when different VOC control options can be considered feasible. That information is summarized in the table below.

Table 1

Control Technology	Recommended VOC concentration (ppmv)	Recommended maximum exhaust gas flow rate (scfm)	Recommended minimum heat content (Btu/scf)
Regenerative thermal oxidizer	greater than 20	50,000	N/A
Recuperative design incinerator	greater than 20	50,000	N/A
Catalytic incinerator	50 to 10,000	50,000	N/A
Flare	N/A	N/A	300
Carbon adsorption	700 to 10,000	N/A	N/A
Absorption (scrubbing)	250 to 10,000	N/A	N/A
Condensation	5,000 to 10,000	N/A	N/A

N/A = no recommendation made.

As shown in the table above, there are no technically feasible control options.

IDEM also asked Harrison to evaluate the feasibility of using a concentrator prior to a VOC control device. However, concentrator vendors have stated that the VOC content of the exhaust stream would not work well

in a concentrator. The paraffinic distillate and the hydrotreated light distillate will not exist as a vapor at 69 degrees Fahrenheit, but instead will be a mist. The vendors believed that this would plug the prefilter of the concentrator in a very short time, and thus all vendors declined to bid.

Step 3 - Rank remaining control technologies by control effectiveness

Technically Feasible Control Options - As discussed above, there are no technically feasible control options.

Step 4 - Evaluate the most effective controls and document results

Evaluation of Emission Limit

Existing BACT/LAER Emission Limitations - The EPA RACT/BACT/LAER Clearinghouse (RBLC) is a database system that provides emission limit data for industrial processes throughout the United States. IDEM searched the database for pouring and cooling operations for steel foundries, but very little information was found for steel foundries. Therefore, IDEM broadened the search to include iron foundries as well. This is appropriate because it is the most similar operation available. Also, Harrison Steel produces a small amount of ductile iron castings, in addition to steel castings. The following table summarizes previous BACT determinations for VOC emissions from similar operations:

Table 2

Source Name (Production Capacity)	VOC limit	Control Technology	Compliance Information
Harrison Steel's proposed BACT	0.14 lbs/ton	No Controls	N/A
Waupaca Foundry, IN, line 5 pouring/cooling (25 tons iron/hr)	0.5 lbs/ton	No Controls	Compliant stack test on 9/28/99
Waupaca Foundry, IN, line 6 pouring/cooling (18 tons iron/hr)	0.5 lbs/ton	No Controls	Compliant stack test on 9/28/99
Waupaca Foundry, IN, line 7 pouring/cooling (30 tons iron/hr)	0.5 lbs/ton	No Controls	Compliant stack test on 9/28/99
Waupaca Foundry, IN, line 8 pouring/cooling (18 tons iron/hr)	0.5 lbs/ton	No Controls	Compliant stack test on 9/28/99
Waupaca Foundry, IN, Line 1	0.5 lbs/ton	No Controls	Compliant stack test on 9/21/99
Grede Foundries, Inc., WI	0.14 lbs/ton	No Controls	no information available
Wheland Foundry, TN, molding line - Seiatsu	150.8 tons/yr (equivalent to 0.098 lbs/ton)	No Controls, efficient sand system operation	Compliant; required demonstrate efficient sand system operation, tests included LOI, VCM, etc. to show optimum configuration
Waupaca Foundry, TN	12 lbs/hr	No Controls, efficient operation of Disa Line	still under construction

Step 5 - Select BACT

Review of the RBLC information indicates that the lowest VOC BACT limit for a pouring operation is 0.098 pound per ton of metal poured, which is the limit for Wheland Foundry in Tennessee. However, Wheland Foundry has not performed any stack testing to determine compliance with this emission limit. The AP-42 emission factor for VOC from iron pouring operations is 0.14 pounds per ton of metal poured. This is the uncontrolled emission factor. Since Wheland has not conducted a stack test demonstrating compliance with their lower limit, and Wheland does not employ any control system to reduce emissions below those levels achieved by other sources, IDEM has no reason to believe that Wheland's emissions are any lower than from other similar operations. Since AP-42 gives an emission factor of 0.14 pounds per ton of metal poured for uncontrolled operations, and it has been determined that no controls are feasible, IDEM

concludes that 0.14 pounds per ton of metal poured is BACT. This limit is consistent with other BACT limits that have been demonstrated for similar operations. Compliance will be achieved through the use of efficient sand system operation, in conjunction with a production limit of 55,400 tons of metal per year.

(2) Shakeout

Shakeout is the process used to separate the metal castings from the sand molds. The VOC from this process result from the partial evaporation of the binder material from the molds.

Step 1 - Identify Control Options

Control Options Evaluated - The following available technologies were evaluated to control VOC emissions from the shakeout process:

Regenerative thermal oxidizer
Recuperative design incinerator
Catalytic incinerator
Flare
Carbon Adsorption
Absorption (scrubbing)
Condensation

Step 2 - Eliminate technically infeasible control options

Harrison Steel estimates the required flow rate for controlling the shakeout process would be 80,000 scfm, the VOC concentration would be 5.87 ppmv, and the heat content would be 0.03 Btu/scf. The OAQPS Cost Control Manual provides information for when different VOC control options can be considered feasible. That information is summarized in the table below.

Table 3

Control Technology	Recommended VOC concentration (ppmv)	Recommended maximum exhaust gas flow rate (scfm)	Recommended minimum heat content (Btu/scf)
Regenerative thermal oxidizer	greater than 20	50,000	N/A
Recuperative design incinerator	greater than 20	50,000	N/A
Catalytic incinerator	50 to 10,000	50,000	N/A
Flare	N/A	N/A	300
Carbon adsorption	700 to 10,000	N/A	N/A
Absorption (scrubbing)	250 to 10,000	N/A	N/A
Condensation	5,000 to 10,000	N/A	N/A

N/A = no recommendation made.

As shown in the table above, there are no technically feasible control options.
IDEM also asked Harrison to evaluate the feasibility of using a concentrator prior to a VOC control device. However, concentrator vendors have stated that the VOC content of the exhaust stream would not work well in a concentrator. The paraffinic distillate and the hydrotreated light distillate will not exist as a vapor at 69 degrees Fahrenheit, but instead will be a mist. The vendors believed that this would plug the prefilter of the concentrator in a very short time, and thus all vendors declined to bid.

Step 3 - Rank remaining control technologies by control effectiveness

Technically Feasible Control Options - As discussed above, there are no technically feasible control options.

Step 4 - Evaluate the most effective controls and document results

Evaluation of Emission Limit

Existing BACT/LAER Emission Limitations - The EPA RACT/BACT/LAER Clearinghouse (RBLC) is a database system that provides emission limit data for industrial processes throughout the United States. IDEM searched the database for shakeout operations for steel foundries, but very little information was found for steel foundries. Therefore, IDEM broadened the search to include iron foundries as well. This is appropriate because it is the most similar operation available. Also, Harrison Steel produces a small amount of ductile iron castings, in addition to steel castings. The following table summarizes previous BACT determinations for VOC emissions from similar operations:

Table 4

Source Name (Production Capacity)	VOC limit	Control Technology	Compliance Information
Harrison Steel's proposed BACT for shakeout operations	7.59 lbs/hr (equivalent to 1.20 lbs/ton metal and 0.40 lbs/ton sand)	No Controls	N/A
Waupaca Foundry, IN, shakeout (5 lines)	7.3 lbs/hr (equivalent to 0.1 lbs/ton metal)	No Controls	verified through monitoring, no stack tests performed
Waupaca Foundry, IN, line 1 shakeout	0.1 lbs/ton metal	No Controls	compliant stack test Sept 1999
Waupaca Foundry, IN, line 7 shakeout (30 tons iron/hr)	3.0 lbs/hr (equivalent to 0.1 lbs/ton metal)	No Controls	compliant stack test Sept 1999
Waupaca Foundry, IN, line 8 shakeout (18 tons iron/hr)	1.8 lbs/hr (equivalent to 0.1 lbs/ton metal)	No Controls	verified through required tests (LOI, VCM, etc.)
Waupaca Foundry, IN, line 5 shakeout	2.5 lbs/hr (equivalent to 0.1 lbs/ton metal)	No Controls	compliant stack test Sept 1999
Wheland Foundry, TN, molding line - Seiatsu	3.00 lbs/hr (equivalent to 0.124 lbs/ton metal and 0.0063 lbs/ton sand)	No Controls	Demonstrated efficient sand system operation, tests included LOI, VCM, etc. to show optimum configuration
Neenah Foundry Plant 2, WI	52.8 lbs/hr (equivalent to 1.76 lbs/ton metal)	No Controls	no information

Review of the RBLC information indicates that the lowest achievable VOC limit for a shakeout operation is 0.1 pound per ton of metal poured, which is the limit for several shakeout lines for Waupaca Foundry in Tell City, Indiana. Waupaca Foundry has performed stack testing and demonstrated compliance with these emission limits on all lines. Wheland Foundry has a limit of 0.124 pounds per ton of metal. However, both Wheland and Waupaca use a green sand molding process, while Harrison Steel uses a phenolic urethane no-bake molding process. The binding agent used in a green sand operation is bentonite clay, which does not contain any VOCs. Green sand only contains 2 to 10 percent carbon-based materials that burn off when the molten metal is added. In chemically-bonded sand casting, such as that used by Harrison Steel, chemical agents are used as the binder in the process. The chemically-bound sand castings are created using a variety of thermal, catalytic, and chemical processes and reactions. For these reasons, chemical bonding produces more emissions than green sand bonding.

As a result, IDEM requested that Harrison Steel evaluate the feasibility of using a green sand molding system. The chemically-bound sand molds are more stable and provide a better surface finish than green

sand molds. These characteristics are of the utmost importance to Harrison Steel's main customer–Caterpillar. Caterpillar has rigid surface specifications for the castings they purchase. Therefore, Harrison Steel cannot use a green sand molding system in place of their proposed phenolic urethane no-bake molding process.

Harrison Steel has used the FIRE version 6.23 VOC emission factor of 1.2 pounds per ton of metal as the basis for their proposed BACT limit. The only listing in the RBLC for a foundry not using a green sand molding process is for Neenah foundry and their BACT limit is higher than the BACT limit proposed by Harrison Steel. Therefore, the BACT limit of 1.2 pounds per ton of metal is the lowest limit, when compared to other foundries using the same type of mold making process. Therefore, this limit is reasonable for steel production.

Harrison Steel also produces some ductile iron castings. As shown in the table above, several other iron foundries have shakeout units that have demonstrated compliance with VOC limits of 0.1 pounds per ton of iron produced. Compliance with this lower limit was demonstrated by using a green sand/binder system. Therefore, IDEM asked Harrison Steel to evaluate the feasibility of using a green sand/binder system for the production of the ductile iron castings. In order to run separate sand/binder systems for steel and ductile iron castings, Harrison Steel would need to construct additional equipment to ensure segregation of the sand types. Harrison Steel completed a cost analysis to estimate the cost of installing all the necessary equipment to run separate sand/binder systems. Harrison Steel only produces about 3,000 tons of ductile iron castings per year; therefore an annual ductile iron production limit would be potentially feasible for Harrison Steel. The cost analysis shows the cost of the additional equipment needed for two separate binder/sand systems, and analyzes the cost effectiveness based on different levels of ductile iron casting production. The table below summarizes the results of the analyses.

Table 5

Annualized Cost of additional equipment required to run two separate binder/sand systems ($/yr)	Annual Ductile Iron Production (tons/yr)	VOC Reduced (tons/yr)	Cost Effectiveness ($/ton of VOC reduced)
217,036	52,630	28.95	7,497
217,036	35,000	19.25	11,275
217,036	3,000	1.65	131,537

Harrison Steel has accepted a metal production limit of 55,400 tons per year. The above table indicates that if Harrison Steel were allowed to produce 95% of its total allowed annual metal production as ductile iron castings, the cost effectiveness of having two separate binder/sand systems would be $7,497 per ton of VOC reduced. IDEM would consider this to be a reasonable cost. However, since Harrison only actually produces about 3,000 tons per year of ductile iron castings, IDEM analyzed the cost of having the two separate binder/sand systems at other lower levels of ductile iron casting production. The table above clearly shows that at 3,000 tons per year of ductile iron castings, the cost of having two separate binder/sand systems would be prohibitive. Therefore, IDEM tried to determine an appropriate limit on Harrison Steel's annual ductile iron production level. The table shows that with a production limit of 35,000 tons per year of ductile iron castings, the cost of having two separate sand/binder systems would still be prohibitive. Harrison Steel has agreed to this production limit for ductile iron castings. Therefore, IDEM agrees that with a production limit of 35,000 tons per year of ductile iron castings, it is not reasonable to require two separate sand/binder systems.

Step 5 - Select BACT

BACT for VOC emissions from the shakeout operation is determined to be a no controls, with an emission limit of 1.2 pounds per ton of metal. This limit applies for both steel production and ductile iron production. Compliance will be achieved through the use of efficient sand system operation, in conjunction with a metal production limit of 55,400 tons of metal per year. A ductile iron production limit will also be established at 35,000 tons per year.

(3) Mold Making

Most of the VOCs from this process result from the partial evaporation of the binder material from the molds. This occurs throughout the entire mold making process; however, it is not well established how much is emitted from each individual step in the process.

Step 1 - Identify Control Options

Control Options Evaluated - The following available technologies were evaluated to control VOC emissions from the mold making process:

Regenerative thermal oxidizer
Recuperative design incinerator
Catalytic incinerator
Flare
Carbon Adsorption
Absorption (scrubbing)
Condensation
Using the thermal sand reclaimer to control emissions

Step 2 - Eliminate technically infeasible control options

Harrison Steel estimates the required flow rate for controlling the mold making process would be 270,000 scfm, the VOC concentration would be 5.09 ppmv, and the heat content would be 0.025 Btu/scf. The OAQPS Cost Control Manual provides information for when different VOC control options can be considered feasible. That information is summarized in the table below.

Table 6

Control Technology	Recommended VOC concentration (ppmv)	Recommended maximum exhaust gas flow rate (scfm)	Recommended minimum heat content (Btu/scf)
Regenerative thermal oxidizer	greater than 20	50,000	N/A
Recuperative design incinerator	greater than 20	50,000	N/A
Catalytic incinerator	50 to 10,000	50,000	N/A
Flare		N/A	300
Carbon adsorption	700 to 10,000	N/A	N/A
Absorption (scrubbing)	250 to 10,000	N/A	N/A
Condensation	5,000 to 10,000	N/A	N/A

N/A = no recommendation made.

As shown in the table above, there are no technically feasible add-on control options for the mold making process as a whole.

IDEM also asked Harrison to evaluate the feasibility of using a concentrator prior to a VOC control device. However, concentrator vendors have stated that the VOC content of the exhaust stream would not work well in a concentrator. The paraffinic distillate and the hydrotreated light distillate will not exist as a vapor at 69 degrees Fahrenheit, but instead will be a mist. The vendors believed that this would plug the prefilter of the concentrator in a very short time, and thus all vendors declined to bid.

Step 3 - Rank remaining control technologies by control effectiveness

Technically Feasible Control Options - As discussed above, there are no technically feasible add-on control options for the mold making process as a whole. However, the possibility of using the thermal sand reclaimer to control emissions from just the mixer has been evaluated.

The thermal sand reclaimer is a fluidized bed used to destroy the residual organics left on the mold sand after the mechanical sand reclaimer breaks apart the molds. The source combines this “cleaned” mold sand with other contaminated mold sand. This allows the source to re-use the mold sand without a large build-up of residual organics, which would otherwise negatively affect the quality of the castings. The thermal reclaimer typically operates at a temperature of 1300 to 1650 degrees Fahrenheit in order to destroy the residual organics on the mold sand. Therefore, the thermal sand reclaimer is already designed to operate at temperatures high enough to destroy VOCs in an exhaust gas stream. The thermal sand reclaimer requires 9,100 standard cubic feet per minute (scfm) of air flow. The mixer has an airflow exhaust less than 9,100 scfm; therefore IDEM and Harrison Steel believe that some of the airflow that the thermal sand reclaimer requires, could be supplied from the mixer exhaust. Even though IDEM has not identified any other foundry required to utilize a thermal sand reclaimer to control VOC emissions from any other emission unit, IDEM has identified other foundries that choose to exhaust emissions from the mixer to the thermal sand reclaimer in order to reduce odors from the mixer. Since this has been successfully demonstrated to reduce odors from mixers at other foundries, IDEM requested that Harrison Steel evaluate

the feasibility of using the thermal sand reclaimer as an oxidizer to destroy the VOCs from the mixer. Harrison Steel believes that the use of the thermal sand reclaimer would be a technically feasible control alternative for the VOC emissions from the mixer.

Step 4 - Evaluate the most effective controls and document results

Evaluation of Emission Limit

Evaluation of Emission Limit for Mixer

Harrison Steel believes that the use of the thermal sand reclaimer would be a technically feasible control alternative for the mixer. Additionally, there would be very little cost involved in implementing such a system, since all the necessary equipment (i.e. the reclaimer) is already an integral part of the mold making process. Therefore, this alternative is considered both technically and economically feasible.

Existing BACT/LAER Emission Limitations for thermal reclaimers - The EPA RACT/BACT/LAER Clearinghouse (RBLC) is a database system that provides emission limit data for industrial processes throughout the United States. IDEM searched the database for thermal reclamation operations for steel foundries, but very little information was found for steel foundries. Therefore, IDEM broadened the search to also include all RTOs and recuperative incinerators at steel or iron foundries. This is appropriate because the thermal sand reclaimer operates in a manner similar to a RTO; and therefore, should be able to comply with the same outlet VOC concentrations. The following table summarizes previous BACT determinations for VOC on similar operations:

Table 7

Source Name (Production Capacity)	Description of process	VOC limit	Compliance Information
Harrison Steel's proposed BACT for thermal reclaimer	thermal reclaimer to destroy residual organics on used sand	98% overall efficiency and 0.005 lb/ton mold sand	N/A
Waupaca Foundry, IN, Phase 2 cupola, permit CP123- issued 2/4/98	recuperative incinerator to control Phase 2 cupola	0.02 lb/ton iron	compliant stack test Sept 1999
Waupaca Foundry, IN, Phase 1 cupola, permit CP123- issued 2/4/98	recuperative incinerator to control Phase 1 cupola	0.02 lb/ton iron	compliant stack test Sept 1999
Wheland Foundry, TN, permit 371091I93I94I issued 11/3/98	RTO to control phenolic urethane cold box system (gray iron foundry)	22.04 lbs/hr, 98% overall control efficiency (equivalent to 2.2 lbs/ton)	Compliant Stack Test demonstrated 99.2% overall control efficiency for total VOC emissions
Huron Casting, Inc., Pigeon, MI, Permit #850-90, issued 6/10/91	RTO to control phenolic urethane cold box system (gray iron foundry)	4.1 lbs/hr (equivalent to 0.854 lbs/ton) and 0.51 tons/yr	not currently in operation, no compliance information available
Waupaca Foundry, Etowah, TN Permit #54-017420 issued 4/28/00	phenolic urethane cold box system (gray iron foundry)	3 lbs/hr (stack) (equivalent to 0.15 lb/ton), 15.06 lbs/hr (total stack and fugitive) (equivalent to 0.753 lbs/ton) and 5.50 tons per year (combined limits for both core mixing and core making)	no method specified for demonstrating compliance, currently under construction

Review of the RBLC information indicates that the most stringent BACT for a RTO is 98 percent control, which is the limit for Wheland Foundry in Tennessee. Since it has been demonstrated that 98% control is feasible for a RTO on a similar foundry operation, IDEM concludes that 98% VOC control efficiency is BACT.

Existing BACT/LAER Emission Limitations for mold making operations - IDEM searched the RBLC database for mold making operations for steel foundries, but very little information was found for steel or iron foundries. Therefore, IDEM broadened the search to also include core making at steel and iron foundries. This is appropriate because it is the most similar operation available. Also, Harrison Steel produces a small amount of ductile iron castings, in addition to steel castings, and Harrison uses the same type of resin for both mold making and core making. Therefore, the emissions from the evaporation of the resin material are expected to be directly proportional to the emissions from the core making operation, based on the amount of resin used. The following table summarizes previous BACT determinations for VOC on similar operations:

Table 8

Source Name (Production Capacity)	Description of process	VOC limit	Control Technology	Compliance Information
Harrison Steel's proposed BACT for mold making process	phenolic urethane no-bake system	22.20 lbs/hr (equivalent to **1.17** lbs/ton molds)	No Controls	N/A
Waupaca Foundry, IN, Phase 2 operations, permit CP123- issued 1/19/96	6 core machines, phenolic urethane cold box core making process (ductile iron foundry)	**0.63** lbs/ton cores	TEA scrubber	compliant stack tests May 2000 and again in Dec 2000
Waupaca Foundry, IN, Phase 1 operations, permit CP123-4593 issued 1/19/96	phenolic urethane cold box core machines (ductile iron foundry)	4.6 lbs/hr (equivalent to **0.288** lbs/ton cores) and 20.2 tons per year	no controls	no stack test required
Golden Castings, IN CP005-7081 issued 3/1/97	phenolic urethane cold box core machines (gray iron foundry)	no specific total VOC limit, but calculations show that with the production limit, total VOC emissions would be **2.90** lbs/ton cores	TEA scrubber	Compliant stack test December 16-17, 1998, results showed TEA emissions of 0.0015 lb/ton
Wheland Foundry, TN, permit 371091I93I94I issued 11/3/98	phenolic urethane cold box core making process (gray iron foundry)	22.04 lbs/hr, 98% overall control efficiency (equivalent to **2.2** lbs/ton cores)	RTO and production limit	Compliant Stack Test demonstrated 99.2% overall control efficiency for total VOC emissions
Huron Casting, Inc., Pigeon, MI, Permit #850-90, issued 6/10/91	phenolic urethane cold box core making process (gray iron foundry)	4.1 lbs/hr (equivalent to **0.854** lbs/ton cores) and 0.51 tons/yr	RTO	not currently in operation, no compliance information available

Source Name (Production Capacity)	Description of process	VOC limit	Control Technology	Compliance Information
Waupaca Foundry, Etowah, TN Permit #54-017420 issued 4/28/00	phenolic urethane cold box core making process (gray iron foundry)	3 lbs/hr (stack) (equivalent to 0.15 lb/ton cores), 15.06 lbs/hr (total stack and fugitive) (equivalent to **0.753** lbs/ton cores) and 5.50 tons per year (combined limits for both core mixing and core making)	TEA scrubber	no method specified for demonstrating compliance, currently under construction

Review of the RBLC information indicates that the lowest VOC BACT limit demonstrated in practice for a phenolic urethane cold box core making process is 0.63 pounds per ton of cores. However, Harrison Steel uses a phenolic urethane no-bake process. The results of a laboratory study performed by the EPA and the Ohio Cast Metals Association (OCMA) showed that VOC emissions were 1.17 pounds per ton of cores produced from a phenolic urethane no-bake process and 0.65 pounds per ton of cores produced for a phenolic urethane cold box process. Since the lowest BACT limit for a phenolic urethane cold box process is 0.63 pounds per ton of cores, which is consistent with OCMA's estimate of 0.65 pounds per ton of cores; IDEM believes that it is appropriate to use the OCMA data to set BACT for Harrison Steel's proposed phenolic urethane no-bake process. The study gives an emission factor of 1.17 pounds per ton of mold sand for uncontrolled operations, and since it has been determined that no controls are feasible, IDEM concludes that 1.17 pounds per ton of mold sand is BACT.

Step 5 - Select BACT

BACT Limit for Thermal Reclaimer Controlling the Mixer - Review of the RBLC information indicates that the most stringent BACT for a RTO is 98 percent control, which is the limit for Wheland Foundry in Tennessee. Since it has been demonstrated that 98% control is feasible for a RTO on a similar foundry operation, IDEM concludes that 98% VOC control efficiency is BACT. This is equivalent to 0.005 pounds per ton of sand throughput and 0.24 pounds per hour. The source has also proposed a production limit of 166,200 tons of mold sand per year.

BACT Limit for entire mold making process - IDEM concludes that 1.17 pounds per ton of mold sand is BACT for the entire mold making process. Compliance will be achieved through the use of efficient sand system operation, in conjunction with a production limit of 166,200 tons of mold sand per year.

(4) Mold Wash

After the molds are produced, they are sprayed with a mold wash material. This material hardens (cures) the mold to prevent it from burning when the molten steel is poured into the mold. Burning of the mold onto the casting causes a poor casting finish. Excessive burning results in more efforts to "finish" the casting in order to make it a marketable product. The VOC from this process result from the evaporation of the mold wash material.

Step 1 - Identify Control Options (Including inherently lower-emitting processes)

The NSR Manual states that potentially applicable control alternatives can include inherently lower-emitting processes, including the use of materials and production processes and work practices that prevent emissions and result in lower "production-specific" emissions.[1] Accordingly, IDEM has reviewed Harrison Steel's choice of mold wash solvents for use in their proposed new mold making process. Two mold washes were evaluated, as follows:

Mold wash A, which is the mold wash that Harrison Steel currently uses in their mold making process; and
mold wash B, which is a water-based mold wash.

Even though IDEM has not been able to identify any other steel foundries that have implemented BACT for mold wash operations, IDEM has identified other steel foundries using the water-based mold wash. The table below summarizes information IDEM gained regarding mold washes used by steel foundries.

Table 9

Source Name (Production Capacity)	VOC content of mold wash material (percent by weight)	Type of Operation
Harrison Steel's proposed BACT for mold wash process	0% VOC by weight	steel foundry
Norcast, Quebec	0% VOC by weight	steel foundry
National Castings, Inc., Melrose Park, IL	0% VOC by weight	steel foundry
National Castings, Inc., Cicero, IL	0% VOC by weight	steel foundry
American Steel Foundries, OH	0% VOC by weight	steel foundry
American Steel Foundries, IL	0% VOC by weight	steel foundry

According to the NSR Manual[2], the use of a control option or technology at another similar source, is sufficient justification to assume the technical feasibility of that technology at the proposed source. The manual states that the decision of whether or not the technology should be required for the source in question would have to be based on an assessment of the similarities and differences between the proposed source and the other sources to which the process technique had been previously applied. Absent an explanation of unusual circumstances by the applicant showing why a particular process cannot be used at the proposed source, the review agency may presume it is technically feasible.

In this case, the castings produced at Harrison Steel must be of a higher finished quality than the castings produced at any of the other sources that use the lower VOC content mold wash. Harrison Steel produces most of its steel castings for Caterpillar for use in their large machinery. These castings require a very smooth finish. The other sources produce castings that do not require as smooth of a finish as those

---

1 New Source Review Workshop Manual, EPA, Office of Air Quality Planning and Standards, Research Triangle Park, Page B.10

2 EPA's New Source Review (NSR) Workshop Manual, October 1990, pages B.7, B.18, and B.19

produced by Harrison Steel. As a result, the other steel foundries do not have to be as concerned about the molds burning into the finished castings; and therefore, do not need as much volatiles in their mold wash material. Even so, Harrison Steel believes that a water-based core wash material would be feasible in their proposed new mold making process.

The mold wash that Harrison Steel uses currently has a VOC content of 15.3% by weight; while the water-based mold wash contains has a zero percent VOC content. Emissions from using the solvent based mold wash would be 97 tons per year; while emissions from using the water-based mold wash would be zero.

IDEM agrees that the use of this water-based mold wash shall be considered part of the BACT for the proposed new mold making process. Since the use of a lower-emitting mold wash is a pollution prevention technique, it is considered the top BACT option.

Step 3 - Rank remaining control technologies by control effectiveness

Technically Feasible Control Options - As discussed above, there are no technically feasible control options

Step 4 - Evaluate the most effective controls and document results

Evaluation of Emission Limit

As shown in the table, at least one other steel foundry utilizes a core wash material with a zero percent VOC content. Harrison Steel also proposes to use a water-based core wash material with a zero percent VOC content.

Step 5 - Select BACT

The BACT limit for the mold spray operation is zero VOC emissions.

Appendix C
Air Quality Analysis

Introduction

Harrison Steel Casting Company has applied for a Prevention of Significant Deterioration (PSD) permit to modify its existing facility in Attica in Fountain County, Indiana. The site is located at Universal Transverse Mercator (UTM) coordinates 479000.0 East and 4461000.0 North. The proposed modification would consist of installation of an airset molding line to the green sand process to produce steel castings. Fountain County is designated as attainment for the National Ambient Air Quality Standards. These standards for Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO_2), Carbon Monoxide (CO) and Particulate Matter less than 10 microns (PM_{10}) are set by the United States Environmental Protection Agency (U.S. EPA) to protect the public health and welfare.

August Mack Environmental, Inc. prepared the PSD permit application for Harrison Steel. The permit application was received by the Office of Air Quality (OAQ) on February 6, 2001 and modeling received on February 7, 2001. Revised modeling files were received April 12, 2001. This document provides OAQ=s Air Quality Modeling Section's review of the PSD permit application including an air quality analysis performed by the OAQ.

Air Quality Analysis Objectives

The OAQ review of the air quality impact analysis portion of the permit application will accomplish the following objectives:

A. Establish which pollutants require an air quality analysis based on source emissions.
B. Determine the ambient air concentrations of the source's emissions and provide analysis of actual stack height with respect to Good Engineering Practice (GEP).
C. Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS).
D. Perform a brief qualitative analysis of the source's impact on general growth, soils, vegetation, endangered species and visibility in the impact area with emphasis on any Class I areas. The nearest Class I area is Kentucky's Mammoth Cave National Park which is 450 kilometers from the Harrison Steel site in Fountain County, Indiana.

Summary

Harrison Steel has applied for a PSD construction permit to modify an existing facility, in Attica in Fountain County, Indiana. The PSD application was prepared by August Mack Environmental, Inc of Indianapolis, IN. Fountain County is currently designated as attainment for all criteria pollutants. Emission rates of one pollutant (Volatile Organic Compounds (VOC)) associated with the facility exceeded significant emission rates established in state and federal law, thus requiring air quality analysis.. OAQ conducted Hazardous Air Pollutant (HAPs) modeling and all HAP 8-hour maximum concentrations modeled below 0.5% of each Permissible Exposure Limit (PEL). There was no impact review conducted for the nearest Class I area, which is Mammoth Cave National Park in Kentucky. No Class I analysis is required if a source is located more than 100 kilometers (61 miles) from the nearest Class I area. An additional impact analysis on the surrounding area was conducted and no significant impact on economic growth, soils, vegetation, federal and state endangered species or visibility from the Harrison Steel Casting Company was expected.

Part A - Pollutants Analyzed for Air Quality Impact

PSD requirements in 326 IAC 2-2 apply in attainment and unclassifiable areas and require an air quality impact analysis for each regulated pollutant emitted in significant amounts by a new major stationary source or modification. Significant emission levels for each pollutant are defined in 326 IAC 2-2-1. VOCs will

be emitted from Harrison Steel in excess of their significant emission rates as shown in Table 1. No federally approved VOC single source model exist for PSD review. In lieu of no approved federal model to evaluate VOC emissions, the OAQ has set forth guidelines to help protect the ozone NAAQS. These guidelines set emission thresholds for running a VOC/NOx screening model. This model is not federally approved and is used only for cases where sources are emitting large amounts VOCs or NOx. Since, Harrison Steel is located in Fountain County, a rural county that is in attainment for all pollutants and emits less than 250 tons of VOC, screening modeling is not required. An ozone pre-screening study has been conducted to determine if the VOC emissions impact the surrounding area. It should be noted that all emissions are based on the Best Available Control Technology (BACT) determination and other limitations resulting from the OAQ review of the application.

TABLE 1 – Harrison Steel Significant Emission Rates (tons/yr)

Pollutant	Maximum Allowable Emissions	Significant Emission Rate
VOC (ozone)	183.83	40.0

Significant emission rates are established to determine whether a source is required to conduct an air quality analysis. If a source exceeds the significant emission rate for a pollutant, air dispersion modeling is required for that specific pollutant. A modeling analysis for each pollutant is conducted to determine whether the source modeled concentrations would exceed significant impact levels. Modeled concentrations below significant impact levels are not required to conduct further air quality modeling. Modeled concentrations exceeding the significant impact level would be required to conduct more refined modeling which would include source inventories and background data. These procedures are defined in AGuidelines for Air Quality Maintenance Planning and Analysis, Volume 10, Procedures for Evaluating Air Quality Impacts of New Stationary Sources@ October 1977, U.S. EPA Office of Air Quality Planning and Standards (OAQPS).

Part B - Significant Impact Analysis

An air quality analysis, including air dispersion modeling, was performed to determine the maximum concentrations of the source emissions on receptors outside of the facility property lines. A worst-case approach for emission estimates has been taken due to the nature of the operational capability of the facility.

Model Description

The Office of Air Quality review used the Industrial Source Complex Short Term (ISCST3) model, Version 3, dated April 10, 2000 to determine maximum off-property concentrations or impacts for each pollutant. All regulatory default options were utilized in the United States Environmental Protection Agency (U.S. EPA) approved model, as listed in the 40 Code of Federal Register Part 51, Appendix W AGuideline on Air Quality Models@. The Auer Land Use Classification scheme was referenced to determine the land use in a 3 kilometer (1.9 miles) radius from the source. The area is considered primarily agricultural, therefore a rural classification was used. The model also utilized the Schulman-Scire algorithm to account for building downwash effects. Stacks associated with the proposed airset molding line are below the Good Engineering Practice (GEP) formula for stack heights. This indicates wind flow over and around surrounding buildings can influence the dispersion of concentrations coming from the stacks. 326 IAC 1-7-3 requires a study to demonstrate that excessive modeled concentrations will not result from stacks with heights less than the GEP stack height formula. These aerodynamic downwash parameters were calculated using U.S. EPA=s Building Profile Input Program (BPIP).

Harrison Steel Casting Company **SSM 045-12788**
Attica, IN **Plt ID 045-00002**

Meteorological Data

The meteorological data used in the ISCST3 model consisted of the latest five years of available surface data from the Indianapolis, Indiana National Weather Service station merged with the mixing heights from Peoria, Illinois Airport National Weather Service station. The 1990-1994 meteorological data was purchased through the National Oceanic and Atmospheric Administration (NOAA) and National Climatic Data Center (NCDC) and preprocessed into ISCST3-ready format with a version of U.S. EPA=s PCRAMMET.

Receptor Grid

Ground-level points (receptors) surrounding the source are input into the model to determine the maximum modeled concentrations that would occur at each point. OAQ modeling utilized receptor grids out to 10 kilometers (6.2 miles) for all pollutants. Dense receptor grids surround the property with receptors spaced every 100 meters (328 feet) out to 2 kilometers (1.25 miles), receptors spaced every 250 meters (820 feet) from 2 kilometers to 5 kilometers (3.1 miles), and receptors spaced every 500 meters (1640 feet) from 5 kilometers to 10 kilometers (6.2 miles). Discrete receptors were placed 100 meters or 328 feet apart on Harrison Steel property lines.

Modeled Emissions Data

The modeling used the emission rates listed in Table 3 of the application and was reviewed and revised by OAQ. The modeling results reflect these emissions and are considered the controlling results for this air quality analysis.

Hazardous Air Pollutant Analysis and Results

As part of the air quality analysis, OAQ requests data concerning the emission of 188 Hazardous Air Pollutants (HAPs) listed in the 1990 Clean Air Act Amendments which are either carcinogenic or otherwise considered toxic. These substances are listed as air toxic compounds on the State of Indiana, Department of Environmental Management, Office of Air Quality=s construction permit application Form Y. Any HAP emitted from a source will be subject to toxic modeling analysis. The modeled emissions for each HAP are the total emissions, based on assumed operation of 8760 hours per year.

OAQ performed toxic modeling using the ISCST3 model for all HAPs. Maximum 8-hour concentrations were determined and the concentrations were recorded as a percentage of each HAP Permissible Exposure Limit (PEL). The PELs were established by the Occupational Safety and Health Administration (OSHA) and represent a worker=s exposure to a pollutant over an 8-hour work day or a 40-hour work week. In Table 2 below, the results of the HAP analysis with the emission rates, modeled concentrations and the percentages of the PEL for each HAP are listed. All HAPs concentrations were modeled below 0.5% of their respective PELs. The 0.5% of the PEL represents a safety factor of 200 taken into account when determining the health risk of the general population.

TABLE 2 - Hazardous Air Pollutant Analysis

Hazardous Air Pollutants	Total HAP Emissions	Limited HAP Emissions	Maximum 8-hour concentrations	PEL	Percent of PEL
	(tons/year)	(tons/year)	(ug/m3)	(ug/m3)	(%)

Benzene	3.328	3.328	3.38	3200	0.106
Formaldehyde	0.675	0.675	0.68	930	0.073
Lead	0.108	0.108	0.079	50	0.158
Manganese	1.093	1.093	3.96	5000	0.079
Chlorine	0.48	0.48	2.16	3000	0.072
Cobalt	0.001	0.001	0.0038	100	0.004
Arsenic	0.004	0.004	0.017	10	0.170
Selenium	0.004	0.004	0.013	200	0.007
Cadmium	0.004	0.004	0.0097	5	0.194
Antimony	0.015	0.015	0.141	500	0.028
Phosphorus	0.01	0.01	0.051	100	0.051
Nickel	0.056	0.056	0.255	1000	0.026
Chromium	0.014	0.014	0.0637	500	0.013

Part C - Ozone Pre-Screening Analysis

Ozone formation tends to occur in hot, sunny weather when NOx and VOC emissions photochemically react to form ozone. Many factors such as light winds, hot temperatures and sunlight are necessary for higher ozone production. As per OAQ instruction, August Mack Environmental submitted its own ozone transport analysis from Harrison Steel. This included a wind rose analysis. The results of the wind rose analysis show that any potential plume emitted from the facility would fall out to the northeast and relatively close to the facility.

OAQ Three-Tiered Ozone Review

OAQ incorporates a three-tiered approach in evaluating ozone impacts from a single source. The first step is to determine how NOx and VOC emissions from the new source compare to area-wide VOC emissions from Fountain County as well as the surrounding counties of Montgomery, Tippecanoe, Warren and White. Results from this analysis show Harrison Steel=s 183.83 tons/yr of VOC would comprise less than 1% of the area-wide VOC emissions from point, area, onroad and nonroad mobile source and biogenic (naturally-occurring emissions from trees, grass and plants) emissions.

A second step is to review historical monitored data to determine ozone trends for an area and the applicable monitored value assigned to an area for designation determinations. This value is known as the design value for an area. The nearest ozone monitors within this region is the Terre Haute monitor in Vigo County which is 91 kilometers or 57 miles to the southwest of the proposed site, which is considered upwind of the proposed facility. The design value for the Terre Haute monitor for the 1-hour ozone standard over the latest three years of monitoring data is 99 parts per billion (ppb).

A third step in evaluating the ozone impacts from a single source is to estimate the source impact through Wind rose analysis. The Wind rose analysis indicates that prevailing winds in the area occur from the southwest and west-southwest during the summer months of May through September when ozone formation is most likely to occur. Ozone impacts from the Harrison Steel proposed facility would likely fall north, northeast and east northeast of the facility, away from the existing ozone monitors in the region.

From this three-tiered approach, ozone formation is a regional issue and the emissions from Harrison Steel will represent a small fraction of NOx and VOC emissions in the area. Ozone contribution from Harrison Steel emissions is expected to be minimal. Ozone historical data shows that the area monitors have design values below the ozone NAAQS of 120 ppb and the Harrison Steel ozone impact

based on the emissions and modeling will have minimal impact on ozone concentrations in the area.

Part D - Additional Impact Analysis

PSD regulations require additional impact analysis be conducted to show that impacts associated with the facility would not adversely affect the surrounding area. The Harrison Steel PSD permit application provided an additional impact analysis performed by August Mack Environmental. This analysis included an impact on economic growth, soils, vegetation and visibility and is listed in Section 7 of their application.

Economic Growth and Impact of Construction Analysis

A minimal construction workforce is expected and Harrison Steel will draw workers from the local and regional area once the facility is operational. Secondary emissions are not expected to significantly impact the area as all roadways will be paved. Industrial and residential growth is predicted to have negligible impact in the area since it will be dispersed over a large area and new home construction is not expected to significantly increase. Any commercial growth, as a result of the proposed facility, will occur at a gradual rate and will be accounted for in the background concentration measurements from air quality monitors. A minimal number of support facilities will be needed. There will be no adverse impact in the area due to industrial, residential or commercial growth.

Soils Analysis

Secondary NAAQS limits were established to protect general welfare, which includes soils, vegetation, animals and crops. Soil types in Fountain County are of the Fox, Genesee, Warsaw, Wheeling Association which is predominately Miami silt loam with Clyde silty clay loam (Soil Survey of Fountain County, U.S. Department of Agriculture). The general landscape consists of Tipton Till Plain or flat to gently rolling terrain (1816-1966 Natural Features of Indiana - Indiana Academy of Science). According to the insignificant modeled concentrations PM_{10} and the HAPs analysis, the soils will not be adversely affected by the facility.

Vegetation Analysis

Due to the agricultural nature of the land, crops in the Fountain County area consist mainly of corn, winter wheat, oats, soybeans and hay (1998-1999 Indiana Agriculture Report; Indiana Agricultural Statistics Service). The maximum modeled concentrations of Harrison Steel for PM_{10} are well below the threshold limits necessary to have adverse impacts on surrounding vegetation such as autumn bent, nimblewill, barnyard grass, bishopscap and horsetail milkweed (Flora of Indiana - Charles Deam). Livestock in the county consist mainly of hogs, beef and milk cows and sheep (1998-1999 Indiana Agriculture Report; Indiana Agricultural Statistics Service) and will not be adversely impacted from the modification. Trees in the area are mainly Beech, Maple, Oak and Hickory. These are hardy trees and due to the insignificant modeled concentrations, no significant adverse impacts are expected.

Federal and State Endangered Species Analysis

Federally endangered or threatened species as listed in the U.S. Fish and Wildlife Service , Division of Endangered Species for Indiana include 12 species of mussels, 4 species of birds, 2 species of bat and butterflies and 1 species of snake. The mussels and birds listed are commonly found along major rivers and lakes while the bats are found near caves. The agricultural nature of the land overall has disturbed the

habitats of the butterflies and snake and the proposed facility is not expected to impact the area further.

Federally endangered or threatened plants as listed in the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana list two threatened and one endangered species of plants. The endangered plant is found along the sand dunes in northern Indiana while the two threatened species do not thrive on cultivated or grazing land. The proposed facility is not expected to impact the area further.

The state of Indiana=s list of endangered, special concern and extirpated nongame species, as listed in the Department of Natural Resources, Division of Fish and Wildlife, contains species of birds, amphibians, fish, mammals, mollusks and reptiles which may be found in the area of Harrison Steel. However, the impacts are not expected to have any additional adverse effects from this existing source on the habitats of the species than what has already occurred from the agricultural activity in the area.

Additional Analysis Conclusions

The nearest Class I area to the proposed airset molding line is the Mammoth Cave National Park located approximately 450 km southwest in Kentucky. Operation of the proposed facility will not adversely affect the visibility at this Class I area. Harrison Steel is located well beyond 100 kilometers (61 miles) from Mammoth Cave National Park and will not have significant impact on the Class I area. The results of the additional impact analysis conclude the Harrison Steel's proposed facility will have no adverse impact on economic growth, soils, vegetation, endangered or threatened species or visibility on any Class I area.

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, IN
Permit Number: 045-12788-00002
Permit Reviewer: Nisha Sizemore

Emission Unit	Maximum Capacity (Tons metal/hour)	Maximum Capacity (Tons sand/hour)	Total Maximum Capacity (Tons/hour)	PM Limit Pursuant to 326 IAC 6-3-2 (lbs/hr)
Sand Handling	0.0	47.2	47.2	44.0
Pouring	15.73	47.2	62.9	46.7
Cooling	15.73	47.2	62.9	46.7
Shakeout (2 Units)	15.73	47.2	62.9	46.7
Mechanical Reclaimer	0.0	47.2	47.2	44.0
Thermal Reclaimer	0.0	2.9	2.9	8.27

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, IN
Permit Number: 045-12788-00002
Permit Reviewer: Nisha Sizemore

Emission Unit	Maximum Capacity (Tons/Year)	Emission Factor	Emission Factor (lb/ton)	Source of Emission Factor	Overall Efficiency %	Potential Emissions PM (Tons/Year)	PM10 (Tons/Year)	SOx (Tons/Year)	NOx (Tons/Year)	VOC (Tons/Year)	CO (Tons/Year)	Chlorine (Tons/Year) 1.695%*	Cobalt (Tons/Year) 0.003%*	Arsenic (Tons/Year) 0.013%*	Selenium (Tons/Year) 0.01%*
Sand Handling	166,200	PM	3.6	FIRE 6.23	98%	5.98	0.90	0.00	0.00	0.00	0.00				
		PM10	0.54	FIRE 6.23											
Mixer	166,200	VOC	0.234	Stack test****	98%					0.39					
Mold Making	166,200	VOC	1.17	OCMA	0%	0.00	0.00	0.00	0.00	97.23	0.00	0.00	0.00	0.00	0.00
		MDI	0.03164	Mass Balance^^											
Preheat Tunnel (mmBTU/hr)	0.8	PM	7.6	FIRE 6.23	0%	0.03	0.03	0.00	0.35	0.02	0.29	0.00	0.00	0.00	0.00
		PM10	7.6	FIRE 6.23											
		SOx	0.6	FIRE 6.23											
		NOx	100	FIRE 6.23											
		VOC	5.5	FIRE 6.23											
		CO	84	FIRE 6.23											
Mold Wash Station	166,200	VOC	0.00	MSDS	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drying Oven (mmBTU/hr)	3.2	PM	7.6	FIRE 6.23	0%	0.11	0.11	0.01	1.40	0.08	1.18	0.00	0.00	0.00	0.00
		PM10	7.6	FIRE 6.23											
		SOx	0.6	FIRE 6.23											
		NOx	100	FIRE 6.23											
		VOC	5.5	FIRE 6.23											
		CO	84	FIRE 6.23											
Pouring	55,400	PM	0.22	Stack Test IND#	0%	6.09	6.09	0.55	0.28	3.88	0.00	0.10	0.00	0.00	0.00
		PM10	0.22	Stack Test IND#											
		SOx	0.02	FIRE 6.23											
		NOx	0.01	FIRE 6.23											
		VOC	0.14	FIRE 6.23											
		Chlorine	0.01695	USEPA Speciate											
		Cobalt	0.00003	USEPA Speciate											
		Arsenic	0.00013	USEPA Speciate											
		Selenium	0.0001	USEPA Speciate											
		Cadmium	0.0001	USEPA Speciate											
		Antimony	5.4E-06	USEPA Speciate											
		Lead*****	0.000002	Harrison SMP											
		Manganese	0.031	USEPA Speciate											
		Nickel	0.00067	USEPA Speciate											
		Chromium	0.00038	USEPA Speciate											

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, IN
Permit Number: 045-12788-00002
Permit Reviewer: Nisha Sizemore

Emission Unit	Maximum Capacity (Tons/Year)	Emission Factor	Emission Factor (lb/ton)	Source of Emission Factor	Overall Efficiency %	Potential Emissions PM (Tons/Year)	PM10 (Tons/Year)	SOx (Tons/Year)	NOx (Tons/Year)	VOC (Tons/Year)	CO (Tons/Year)	Chlorine (Tons/Year)	Cobalt (Tons/Year)	Arsenic (Tons/Year)	Selenium (Tons/Year)
												1.695%*	0.003%*	0.013%*	0.01%*
Cooling	55,400	PM	0.22	Stack Test IND#	0%	6.09	6.09	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
		PM10	0.22	Stack Test IND#											
		Chlorine	0.01695	USEPA Speciate											
		Cobalt	0.00003	USEPA Speciate											
		Arsenic	0.00013	USEPA Speciate											
		Selenium	0.0001	USEPA Speciate											
		Cadmium	0.0001	USEPA Speciate											
		Antimony	5.4E-06	USEPA Speciate											
		Lead	0.00	Harrison SMP											
		Manganese	0.031	USEPA Speciate											
		Nickel	0.00067	USEPA Speciate											
		Chromium	0.00038	USEPA Speciate											
Shakeout (2 Units)	55,400	PM	3.2	FIRE 6.23	98%	1.77	1.24	0.00	0.00	33.24	0.00	0.03	0.00	0.00	0.00
		PM10	2.24	FIRE 6.23											
		VOC	1.2	FIRE 6.23											
		Chlorine	0.01695	USEPA Speciate											
		Cobalt	0.00003	USEPA Speciate											
		Arsenic	0.00013	USEPA Speciate											
		Selenium	0.0001	USEPA Speciate											
		Cadmium	0.00006	USEPA Speciate											
		Antimony	0.00185	USEPA Speciate											
		Lead	0.00	Harrison SMP											
		Manganese	0.031	USEPA Speciate											
		Nickel	0.00067	USEPA Speciate											
		Chromium	0.00038	USEPA Speciate											

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, IN
Permit Number: 045-12788-00002
Permit Reviewer: Nisha Sizemore

Emission Unit	Maximum Capacity (Tons/Year)	Emission Factor	Emission Factor (lb/ton)	Source of Emission Factor	Overall Efficiency %	Potential Emissions PM (Tons/Year)	PM10 (Tons/Year)	SOx (Tons/Year)	NOx (Tons/Year)	VOC (Tons/Year)	CO (Tons/Year)	Chlorine (Tons/Year)	Cobalt (Tons/Year)	Arsenic (Tons/Year)	Selenium (Tons/Year)
												1.695%*	0.003%*	0.013%*	0.01%*
Mechanical Reclaimer	166,200	PM	3.6	FIRE 6.23	98%	5.98	0.90	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
		PM10	0.54	FIRE 6.23											
		Chlorine	0.01695	USEPA Speciate											
		Cobalt	0.00003	USEPA Speciate											
		Arsenic	0.00013	USEPA Speciate											
		Selenium	0.0001	USEPA Speciate											
		Cadmium	0.00006	USEPA Speciate											
		Antimony	0.00185	USEPA Speciate											
		Lead	0.00	Harrison SMP											
		Manganese	0.031	USEPA Speciate											
		Nickel	0.00067	USEPA Speciate											
		Chromium	0.00038	USEPA Speciate											
Thermal Reclaimer	24,930.00	PM	3.60	FIRE 6.23	98%	0.90	0.13	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
		PM10	0.54	FIRE 6.23											
		Chlorine	0.01695	USEPA Speciate											
		Cobalt	0.00003	USEPA Speciate											
		Arsenic	0.00013	USEPA Speciate											
		Selenium	0.0001	USEPA Speciate											
		Cadmium	0.00006	USEPA Speciate											
		Antimony	0.00185	USEPA Speciate											
		Lead	0.00	Harrison SMP											
		Manganese	0.031	USEPA Speciate											
		Nickel	0.00067	USEPA Speciate											
		Chromium	0.00038	USEPA Speciate											
Thermal Reclaimer (mmBTU/hr)***	3.27	PM	7.6	FIRE 6.23	0%	0.11	0.11	0.01	1.43	0.08	1.20	0.00	0.00	0.00	0.00
		PM10	7.6	FIRE 6.23											
		SOx	0.6	FIRE 6.23											
		NOx	100	FIRE 6.23											
		VOC	5.5	FIRE 6.23											
		CO	84	FIRE 6.23											
Total (Tons/Year)						27.07	15.60	0.57	3.46	134.91	2.67	0.36	0.00	0.00	0.00
PSD						25	15	40	40	40	100	NA	NA	NA	NA
BACT						None	None	None	None	25	None				

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, IN
Permit Number: 045-12788-00002
Permit Reviewer: Nisha Sizemore

	Maximum		Emission	Source of	Overall	Potential Emissions									
Emission Unit	Capacity (Tons/Year)	Emission Factor	Factor (lb/ton)	Emission Factor	Efficiency %	PM (Tons/Year)	PM10 (Tons/Year)	SOx (Tons/Year)	NOx (Tons/Year)	VOC (Tons/Year)	CO (Tons/Year)	Chlorine (Tons/Year)	Cobalt (Tons/Year)	Arsenic (Tons/Year)	Selenium (Tons/Year)
												1.695%*	0.003%*	0.013%*	0.01%*

PM - Particulate Matter
PM10 - Particulate Matter Less Than 10 Microns in Diameter
SOx - Sulfur Oxides
NOx - Nitrogen Oxides
VOC - Volatile Organic Compounds
CO - Carbon Monoxide
OCMA - Ohio Cast Metals Association

Potential Emissions = Maximum Throughput (tons/year) X Emission Factor (pounds/ton) X 2000 pounds/1 tons X (1 - Control Efficiency)
Potential Emissions = Maximum Throughput (tons/year) X Emission Factor (pounds/ton) X 2000 pounds/1 tons
HAPs Emission Factors
* US EPA - Speciate 3.0 Profile Number 90010 Gray Iron Foundries - Average; Report Date 04-03-01
** Harrison Scrap Management Plan (Harrison SMP)
***The 3.27 mmBtu/hr value includes natural gas Btu input values and the thermal content of the residual resin binder.

****Sand Mixer emission factor based on Waupaca, Tell City facility, stack test performed 12/2000.
*****Cooling lead emissions represent lead emissions for entire molding line.

- Rochester Metal Products Corporation, Rochester Manufacturing Facility, Rochester, Indiana: Disa Pouring/Mold Cooling Operations PM/PM10 Stack Test, includes condensibles
^^ MDI emission factor = 7.91 lbs Techniset Part II of binder X 166,200 lbs of sand/year X 1 ton/2,000 pounds X 20% MDI X 2% released to the environment
20% MDI taken from the Techniset Part II MSDS
2% released taken from Form R Reporting of Chemical Binders Used in Foundries, Second Edition, American Foundrymen's Society, Inc. and Casting Industry Suppliers Association, 1998

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, IN
Permit Number: 045-12788-00002
Permit Reviewer: Nisha Sizemore

Emission Unit	Maximum Capacity (Tons/Year)	Emission Factor	Emission Factor (lb/ton)	Source of Emission Factor	Overall Efficiency %	Cadmium (Tons/Year) 0.006%*	Antimony (Tons/Year) 0.185%*	Lead (Tons/Year) 0.0002%**	Manganese (Tons/Year) 3.10%*	Nickel (Tons/Year) 0.067%**	MDI (Tons/Year)	Chromium (Tons/Year) 0.038%**
Sand Handling	166,200	PM	3.6	FIRE 6.23	98%							
		PM10	0.54	FIRE 6.23								
Mixer	166,200	VOC	0.234	Stack test****	98%							
Mold Making	166,200	VOC	1.17	OCMA	0%	0.00	0.00	0.00	0.00	0.00	2.63	0.00
		MDI	0.03164	Mass Balance^^								
Preheat Tunnel (mmBTU/hr)	0.8	PM	7.6	FIRE 6.23	0%	0.00	0.00	0.00	0.00	0.00		0.00
		PM10	7.6	FIRE 6.23								
		SOx	0.6	FIRE 6.23								
		NOx	100	FIRE 6.23								
		VOC	5.5	FIRE 6.23								
		CO	84	FIRE 6.23								
Mold Wash Station	166,200	VOC	0.00	MSDS	0%	0.00	0.00	0.00	0.00	0.00		0.00
Drying Oven (mmBTU/hr)	3.2	PM	7.6	FIRE 6.23	0%	0.00	0.00	0.00	0.00	0.00		0.00
		PM10	7.6	FIRE 6.23								
		SOx	0.6	FIRE 6.23								
		NOx	100	FIRE 6.23								
		VOC	5.5	FIRE 6.23								
		CO	84	FIRE 6.23								
Pouring	55,400	PM	0.22	Stack Test IND#	0%	0.00	0.00	0.11	0.19	0.00		0.00
		PM10	0.22	Stack Test IND#								
		SOx	0.02	FIRE 6.23								
		NOx	0.01	FIRE 6.23								
		VOC	0.14	FIRE 6.23								
		Chlorine	0.01695	USEPA Speciate								
		Cobalt	0.00003	USEPA Speciate								
		Arsenic	0.00013	USEPA Speciate								
		Selenium	0.0001	USEPA Speciate								
		Cadmium	0.0001	USEPA Speciate								
		Antimony	5.4E-06	USEPA Speciate								
		Lead*****	0.000002	Harrison SMP								
		Manganese	0.031	USEPA Speciate								
		Nickel	0.00067	USEPA Speciate								
		Chromium	0.00038	USEPA Speciate								

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, IN
Permit Number: 045-12788-00002
Permit Reviewer: Nisha Sizemore

Emission Unit	Maximum Capacity (Tons/Year)	Emission Factor	Emission Factor (lb/ton)	Source of Emission Factor	Overall Efficiency %	Cadmium (Tons/Year) 0.006%*	Antimony (Tons/Year) 0.185%*	Lead (Tons/Year) 0.0002%**	Manganese (Tons/Year) 3.10%*	Nickel (Tons/Year) 0.067%**	MDI (Tons/Year)	Chromium (Tons/Year) 0.038%**
Cooling	55,400	PM	0.22	Stack Test IND#	0%	0.00	0.00	0.00	0.19	0.00		0.00
		PM10	0.22	Stack Test IND#								
		Chlorine	0.01695	USEPA Speciate								
		Cobalt	0.00003	USEPA Speciate								
		Arsenic	0.00013	USEPA Speciate								
		Selenium	0.0001	USEPA Speciate								
		Cadmium	0.0001	USEPA Speciate								
		Antimony	5.4E-06	USEPA Speciate								
		Lead	0.00	Harrison SMP								
		Manganese	0.031	USEPA Speciate								
		Nickel	0.00067	USEPA Speciate								
		Chromium	0.00038	USEPA Speciate								
Shakeout (2 Units)	55,400	PM	3.2	FIRE 6.23	98%	0.00	0.00	0.00	0.05	0.00		0.00
		PM10	2.24	FIRE 6.23								
		VOC	1.2	FIRE 6.23								
		Chlorine	0.01695	USEPA Speciate								
		Cobalt	0.00003	USEPA Speciate								
		Arsenic	0.00013	USEPA Speciate								
		Selenium	0.0001	USEPA Speciate								
		Cadmium	0.00006	USEPA Speciate								
		Antimony	0.00185	USEPA Speciate								
		Lead	0.00	Harrison SMP								
		Manganese	0.031	USEPA Speciate								
		Nickel	0.00067	USEPA Speciate								
		Chromium	0.00038	USEPA Speciate								

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, IN
Permit Number: 045-12788-00002
Permit Reviewer: Nisha Sizemore

Emission Unit	Maximum Capacity (Tons/Year)	Emission Factor	Emission Factor (lb/ton)	Source of Emission Factor	Overall Efficiency %	Cadmium (Tons/Year) 0.006%*	Antimony (Tons/Year) 0.185%*	Lead (Tons/Year) 0.0002%**	Manganese (Tons/Year) 3.10%*	Nickel (Tons/Year) 0.067%**	MDI (Tons/Year)	Chromium (Tons/Year) 0.038%**
Mechanical Reclaimer	166,200	PM	3.6	FIRE 6.23	98%	0.00	0.01	0.00	0.19	0.00		0.00
		PM10	0.54	FIRE 6.23								
		Chlorine	0.01695	USEPA Speciate								
		Cobalt	0.00003	USEPA Speciate								
		Arsenic	0.00013	USEPA Speciate								
		Selenium	0.0001	USEPA Speciate								
		Cadmium	0.00006	USEPA Speciate								
		Antimony	0.00185	USEPA Speciate								
		Lead	0.00	Harrison SMP								
		Manganese	0.031	USEPA Speciate								
		Nickel	0.00067	USEPA Speciate								
		Chromium	0.00038	USEPA Speciate								
Thermal Reclaimer	24,930.00	PM	3.60	FIRE 6.23	98%	0.00	0.00	0.00	0.03	0.00		0.00
		PM10	0.54	FIRE 6.23								
		Chlorine	0.01695	USEPA Speciate								
		Cobalt	0.00003	USEPA Speciate								
		Arsenic	0.00013	USEPA Speciate								
		Selenium	0.0001	USEPA Speciate								
		Cadmium	0.00006	USEPA Speciate								
		Antimony	0.00185	USEPA Speciate								
		Lead	0.00	Harrison SMP								
		Manganese	0.031	USEPA Speciate								
		Nickel	0.00067	USEPA Speciate								
		Chromium	0.00038	USEPA Speciate								
Thermal Reclaimer (mmBTU/hr)***	3.27	PM	7.6	FIRE 6.23	0%	0.00	0.00	0.00	0.00	0.00		0.00
		PM10	7.6	FIRE 6.23								
		SOx	0.6	FIRE 6.23								
		NOx	100	FIRE 6.23								
		VOC	5.5	FIRE 6.23								
		CO	84	FIRE 6.23								
Total (Tons/Year)						0.00	0.02	0.11	0.65	0.01	2.63	0.01
PSD BACT						NA	NA	0.6	NA	NA	NA	NA

Source Name: Harrison Steel Castings Company
Source Address: 900 South Mound Street, Attica, IN
Permit Number: 045-12788-00002
Permit Reviewer: Nisha Sizemore

Emission Unit	Maximum Capacity (Tons/Year)	Emission Factor	Emission Factor (lb/ton)	Source of Emission Factor	Overall Efficiency %	Cadmium (Tons/Year)	Antimony (Tons/Year)	Lead (Tons/Year)	Manganese (Tons/Year)	Nickel (Tons/Year)	MDI (Tons/Year)	Chromium (Tons/Year)
						0.006%*	0.185%*	0.0002%**	3.10%*	0.067%**		0.038%**
PM - Particulate Matter												

PM10 - Particulate Matter Less Than 10 Microns in Diameter
SOx - Sulfur Oxides
NOx - Nitrogen Oxides
VOC - Volatile Organic Compounds
CO - Carbon Monoxide
OCMA - Ohio Cast Metals Association

Potential Emissions = Maximum Throughput (tons/year) X Emission Factor (pounds/ton) X 2000 pounds/1 tons X (1 - Control
Potential Emissions = Maximum Throughput (tons/year) X Emission Factor (pounds/ton) X 2000 pounds/1 tons
HAPs Emission Factors
* US EPA - Speciate 3.0 Profile Number 90010 Gray Iron Foundries - Average; Report Date 04-03-01
** Harrison Scrap Management Plan (Harrison SMP)
***The 3.27 mmBtu/hr value includes natural gas Btu input values and the thermal content of the residual resin bin

****Sand Mixer emission factor based on Waupaca, Tell City facility, stack test performed 12/2000.
*****Cooling lead emissions represent lead emissions for entire molding line.

- Rochester Metal Products Corporation, Rochester Manufacturing Facility, Rochester, Indiana: Disa Pouring/M
^^ MDI emission factor = 7.91 lbs Techniset Part II of binder X 166,200 lbs of sand/year X 1 ton/2,000 p
20% MDI taken from the Techniset Part II MSDS
2% released taken from Form R Reporting of Chemical Binders Used in Foundries, Second Edition, An